# ARCHITECTURAL RECORD

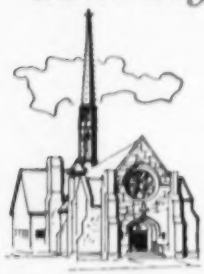
BUILDING TYPES STUDY

## RELIGIOUS BUILDINGS 241

DECEMBER 1956

*Hardly noticeable...always dependable*

# GRINNELL SPRINKLERS



*All Souls Church*
*Bangor, Maine*

"You will find it difficult to get pictures of the Grinnell Sprinkler installation in the auditorium of our church", states correspondence from All Souls Church, Bangor, Maine. "The pipes blend so well with the ceiling rafters that one hardly ever sees them, which, of course, is just what we wanted."

"As to our reason for installing a sprinkler system", continues the letter, "There was no fire or threat of fire. Our insurance committee simply wanted to protect our property more adequately and economically."

Good reasons, too! With at least 8 church fires occurring *every day*, churches need positive protection to stop fire at its start. A Grinnell Sprinkler System provides this protection — stops fire at its source, wherever and whenever it strikes, night or day, *automatically*. Seventy-eight years experience proves this. Moreover, the cost of such protection is small compared to losses from fire, and especially since a Grinnell Sprinkler System reduces insurance premiums.

The best time to consider fire protection is at the planning stage. However, a Grinnell system can be installed in existing buildings with a minimum of inconvenience, and without disrupting normal procedure. Write Grinnell Company, Inc., 269 West Exchange St., Providence, R. I.

**GRINNELL**

**PROTECTION AGAINST EVERY FIRE HAZARD**

*Manufacturing, Engineering and Installation of Automatic Sprinklers since 1878*

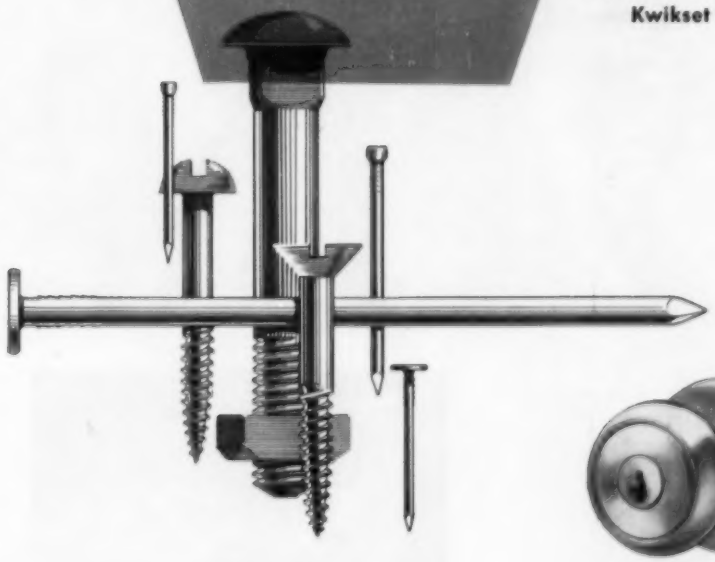
ARCHITECTURAL RECORD (Western Edition) (Vol. 120, No. 6, December 1956) is published monthly, except May 1956 when semi-monthly, by F. W. Dodge Corporation, 10 Ferry Street, Concord, N. H. **Editorial and executive offices: 119 West 40th Street, New York 18, New York.**
$5.50 per year in U. S., U. S. Possessions and Canada. *Second-class mail privileges authorized at Concord, N. H.*

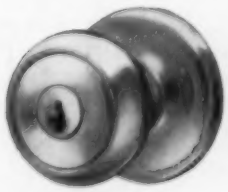
# variety

In nails or nuts, bolts or brads, the
building craftsman needs variety because each
size and shape is designed for a specific use.

When you specify locksets, you need variety, too, and
you'll find it with the Kwikset "400" line.
Variety in functions, finishes and designs.
Variety in distinctively styled trim rosettes . . . and
variety in time-saving installation aids.

Yet, with all this variety, the proven performance of
Kwikset "400" line locksets never varies.





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1. Newest Tear-Drop Design Dispenser
2. Push-in type, with either glass or metal container
3. Push-up type, with either glass or metal container

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**VALVES FOR GRAVITY SYSTEMS**

6. Push-in wall mounted type
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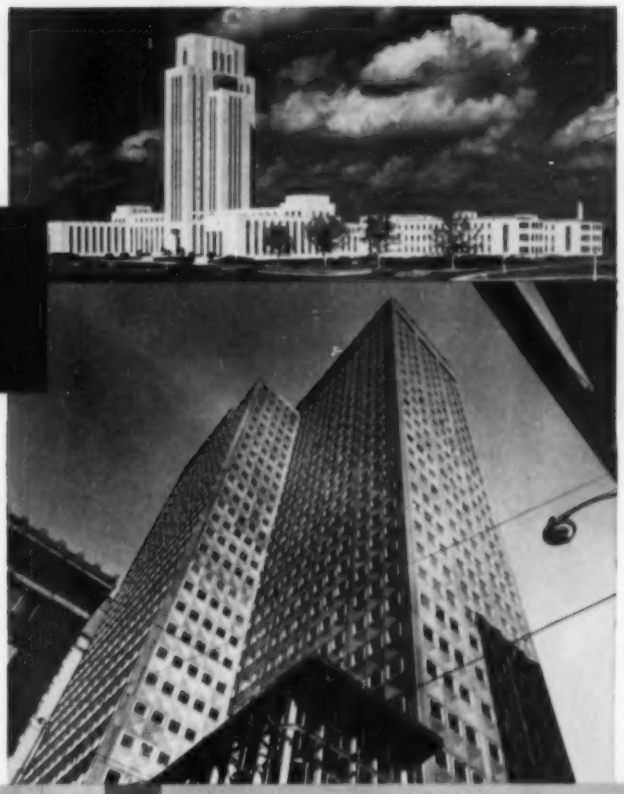
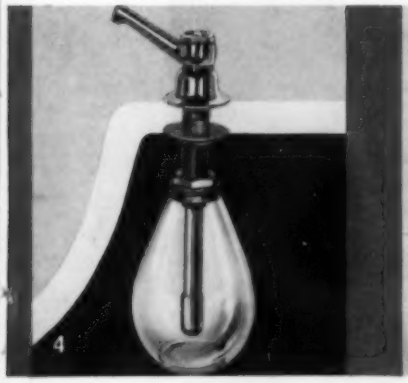
**WATROUS LATHER DISPENSERS** Use any standard liquid soap, and dispense it as firm full-bodied lather. Reduces waste to save as much as 65%, yet provides complete washing satisfaction.

# Soap Dispensers...

**Naval Medical Center, Bethesda, Md.**
**Paul P. Cret, Consulting Architect**
**Moody & Hutchison, Consulting Engineers**
**Standard Engineering Co., Plumbing Contractor**



**Alcoa Building, Pittsburgh, Pa**
**Harrison & Abramovitz**
**Altenhof & Bown**
**Mitchell & Ritchey, Architects**
**Sauer, Inc., Plumbing Contractors**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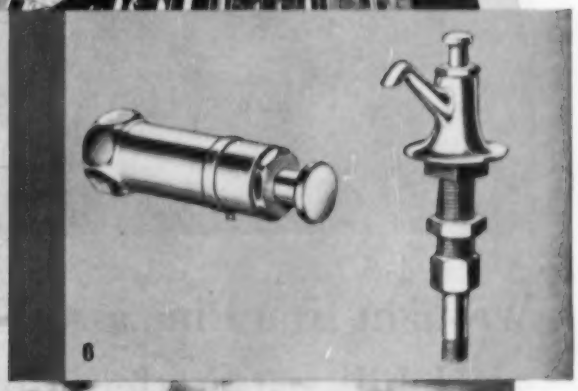
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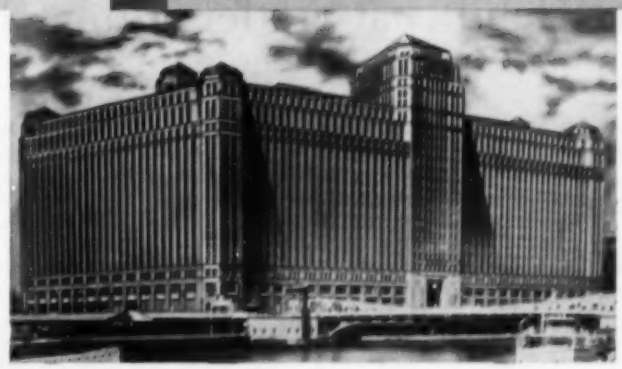
**Merchandise Mart, Chicago, Ill.**
**Graham, Anderson, Probst & White, Architects**
**H. P. Reger, Plumbing Contractor**



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## LIQUID AND LATHER SOAP DISPENSERS

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New York, New York

Contractor: Brown & Olds
Plumbing & Heating Corp.
Dallas, Texas

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# ARCHITECTURAL RECORD

**December 1956 Vol. 120 No. 6**



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*Cover: K. T. I. Synagogue, Port Chester, N. Y.; Philip Johnson, Architect; © Ezra Stoller photo*


**Building Types Study Number 241 — Religious Buildings**

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# PRECAST, PRESTRESSED CONCRETE FOR *Speed and Economy*

## 66 Precast Bays Go Up in 11 Days

● Winter often slows concrete work, but on this concrete building in Bridgeton, N. J., columns, beams and floor members were factory precast and shipped to the site from 30 miles away. As a result, 66 precast bays went up in 11 days on this new 120 by 220-ft. industrial building in Bridgeton, N. J.

Key to fast erection was the use of all precast components. Precast 38-ft.-long columns support 19-ft. pretensioned beam soffits that, in turn, carry 1½-in.-thick, precast channels, 24 in. wide by 10 in. deep by 19 ft. 4 in. long. These channels form the base for a 2-in. cast-in-place concrete topping that comprises the floor surface.

The prestressed beam soffits form the bottom half of the web of a composite T-beam, completed when the topping was placed. Beam soffits were prestressed to carry both the dead load of the channels plus that of the topping. Prestressing was accomplished by tensioning sixteen ⅜-in. strands.

All components were cast at the Berlin, N. J. plant of the Formigli Corporation and shipped to site by truck. Fast, economical erection again confirms the importance of quality members fabricated to closest tolerances under factory-controlled conditions.

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*Reg. U. S. Pat. Off.

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Factory and Warehouse, Bridgeton, N. J.

General Contractor: **MESSICK BROTHERS**, Bridgeton, N. J.

Prestressing Engineer: **KEAST & HOOD**, Philadelphia

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**The Johns Riverside Development** is a fabulous place in Tampa, Florida, with homes priced between $12-$18,000, featuring 2 and 3 bedrooms. Universal-Rundle fixtures in decorator colors were supplied by Scruggs Bros. Plumbing Supplies, Inc.

**Hidden Village Homes,** in Garden Grove, California, are $30-$75,000 structures built by Henry C. Cox and Affiliated Companies of Garden Grove. All bathroom fixtures are by Universal-Rundle and are in color.

## New Developments and Modern Hotels Feature The World's Finest Bathroom Fixtures

These beautiful new homes and this modern hotel were all made more attractive by the installation of Universal-Rundle bathroom fixtures in decorator colors. And, no wonder! All over the country the trend is to U/R.

For more than half a century, Universal-Rundle has searched for and found better ways to make bathroom fixtures more beautiful, more efficient, more lasting. The first colored bathroom fixtures were introduced by Universal-Rundle and today you can look to Universal-Rundle for the newest in smart, modern design, unobtrusive performance and long life.

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**NEW STYLED FIXTURES**
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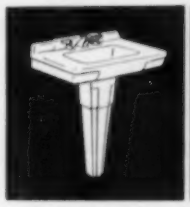


Chateau Lavatory

Como Water Closet

THE WORLD'S FINEST BATHROOM FIXTURES BY

**Universal U/R Rundle**

Plants in Camden, New Jersey; Milwaukee, Wisconsin; New Castle, Pa.; Redlands, California; Hondo, Texas

Advertisement No. 10-282 appears in Architectural Record, December, 1956
Geyer Advertising, Inc., Dayton, 8459

# A *NEW* EDITORIAL PARTNERSHIP

THROUGH ACQUISITION of the publications THE MODERN HOSPITAL, THE NATION'S SCHOOLS, and COLLEGE AND UNIVERSITY BUSINESS — leaders in their respective fields — the F. W. Dodge Corporation has extended its professional magazine horizon. Headquarters of these magazines will remain in Chicago. The strong publishing team and editorial staffs that have made these magazines dominant in the areas they serve will be retained.

We believe this acquisition is significant to those who read and use ARCHITECTURAL RECORD. We at F. W. Dodge who edit the RECORD hold to our conviction that architects and engineers have an increasing need for a professional magazine edited specifically in terms of their complex interests and problems. The RECORD's success supports this conviction. Equally, such client groups as hospital administrators, school administrators and college and university administrators have need for publications edited to serve them in terms of their special interests, of which building design is but one. The recognized strength of our companion magazines is based on meeting these needs effectively.

In serving you as our reader we have consistently sought to present the reasoning of educators with respect to what is asked of present-day schools. We have steadily presented findings of hospital specialists and of doctors in and out of government as to standards to be met in the design of many types of health facilities. And we have dealt in the same spirit with the complex family of structures requisite to college and university campus.

On many occasions the editors of THE MODERN HOSPITAL, THE NATION'S SCHOOLS and COLLEGE AND UNIVERSITY BUSINESS have collaborated with us in our efforts to serve RECORD readers well.

Clearly, under common ownership and joint publishing management, opportunities for useful coordination of efforts will multiply. To RECORD readers will come increasingly the fruits of the experience and special knowledge of editors who are leading the thinking of hospital, school and college administrators. To our affiliate publications' staffs will be added the knowledge and experience of the RECORD's editorial staff of twenty-four.

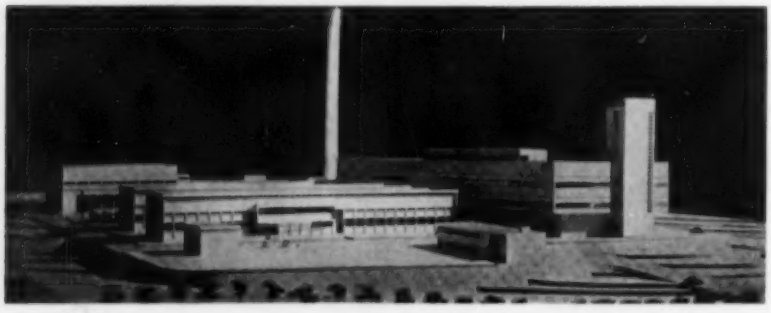
So we are very glad to broaden our horizon by joining forces with companion publications in areas which are vitally important to architects, engineers and our society as a whole.

***John Knox Shear***

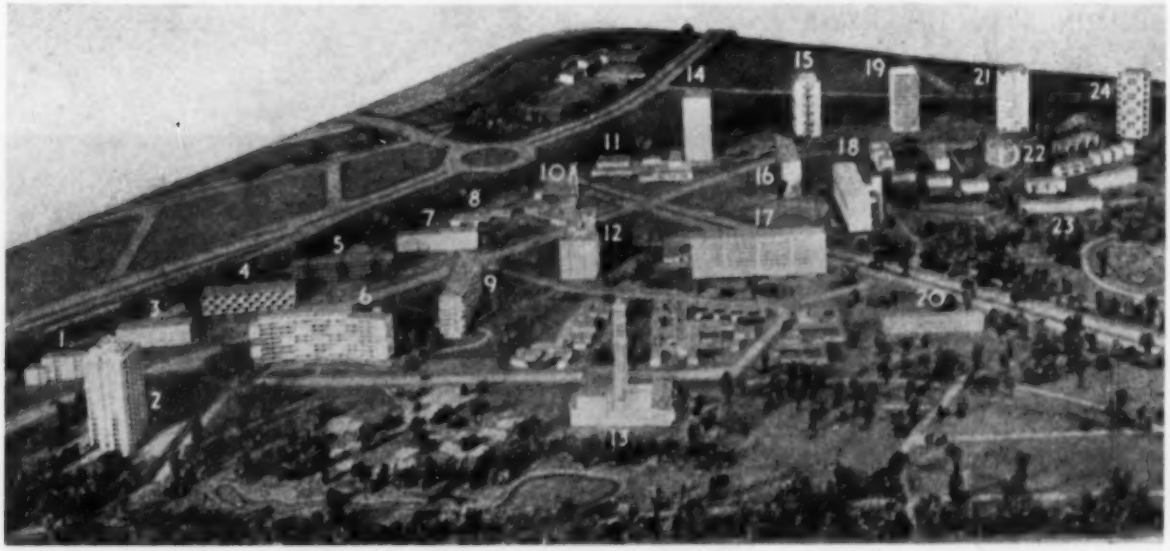
## NEW BUILDING ABROAD

ST. PAUL'S: *Sir William Holford's plan for rebuilding the area of London around St. Paul's Cathedral has received plenty of attention from the British press, lay and architectural. It has also aroused some controversy, which* The Architectural Review *characterizes as a basic issue of principle between adherents of the "Grand Manner" (French) and the "Picturesque" (English). Sir William, according to the* Review, *considered the picturesque approach of "surprise and concealment" more appropriate to the site and to the cathedral. The plan had not, at the time of the June report, been adopted, but the* Review *had hopes that the preponderance of pro opinion, both public and professional, would outweigh the vocal minority opposed to Sir William's scheme*

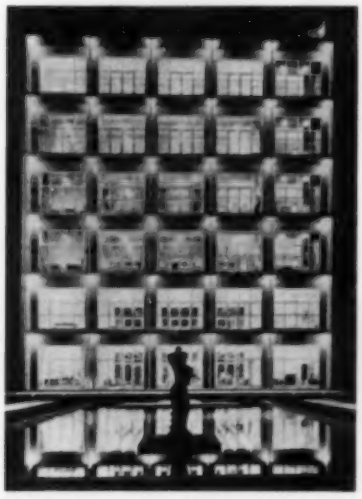
WAR MEMORIALS: *designed and dedicated by architect Mario Labo to his architect son and to other Italians killed at Mathausen by the Germans, the monument above was reported in the Italian journals* Casabella *and* L'Architettura. *The memorial is composed of an iron cross by sculptor Mirko and a stone wall, representing "a wall of sorrow, a wall for firing squads, a bastion and a sepulchre." In the same issue of* L'Architettura, *the postwar work of Netherlands Architect J. J. P. Oud was reviewed, including his 1949 monument for Amsterdam (top right) and the 1948 monument for Rhenen (bottom right)*

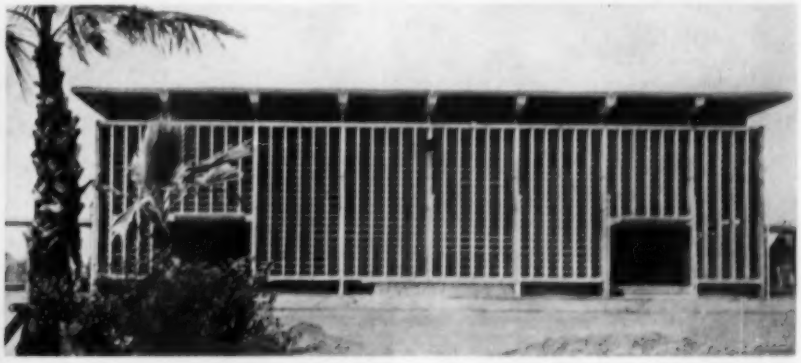


ENERGIE ATOMIQUE: *the May issue of the French magazine* Techniques & Architecture *reported on the French Atomic Energy Commission's industrial center of Marcoule, now under construction at Gard, on the River Rhône. Major buildings at the center are the three reactors and (left) the plutonium "ensemble," containing laboratories, offices and, at right in the photo, the factory. The architects for the center are D. Badani and P. Roux-Dorlut*



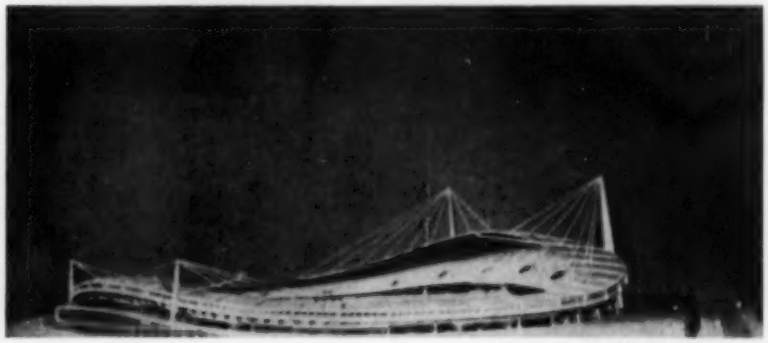

BERLIN INTERBAU: *part of the International Building Exhibition being held in Berlin next year will be the new housing in the Hansa Quarter. Architects for the apartments, as reported in the August 9 issue of* The Architects' Journal, *include: 1. Alexander Klein, Israel; 2. Klaus Muller-Rehm and Gerhard Siegmann, Berlin; 3. Richard Henning, Berlin; 4. Gunther Gottwald, Berlin; 5. Wassili Luckhardt and Hubert Hoffmann, Berlin; 6. Walter Gropius, U. S.; 7. Paul Schneider-Esleben, Dusseldorf; 9. Pierre Vago, France; 12. Alvar Aalto, Finland; 14. Luciano Baldessari, Italy; 15. J. H. van den Broek and J. B. Bakema, Netherlands; 16. Egon Eiermann, Karlsruhe; 17. Fritz Jaenecke and Sten Samuelson, Sweden; 18. Oscar Niemeyer, Brazil; 19. Gustav Hassenpflug, Hamburg; 20. Paul G. R. Baumgarten, Berlin; 21. R. Lopez and E. Baudoin, France; 22. O. H. Senn, Switzerland; 23. H. Scharoun, Berlin; 24. H. Schwippert, Dusseldorf*





FOR WORLD PEACE: *Japan, building an International Culture Center, located it symbolically at Nagasaki, the only city open to Westerners during Japan's isolationist period. The center comprises two concrete buildings: a memorial hall, left, and an auditorium, above. Takeo Sato was the architect*

HANGING ROOF: *a model for a new stadium at Göteborg, Sweden, as reported in the October 1 issue of the German magazine* Bauwelt, *shows a roof suspended entirely around the stands by cables strung from four masts. The design was selected in a national competition won by architects Fritz Jaenecke and Sten Samuelson, with associate Torsten Hebrand. In addition to facilities for football and motor-cycle racing, the 52,000-seat stadium will contain also a swimming pool and, in the winter, a skating rink*



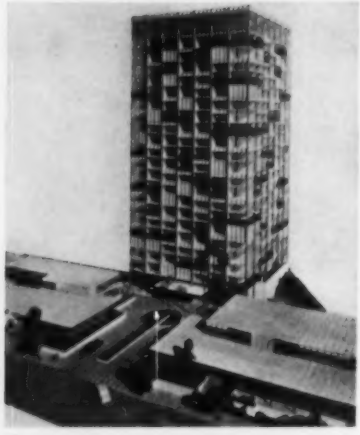
*(More new buildings on page 12)*

## BUILDINGS IN THE NEWS

*SOME CURRENT PROJECTS: 1. Central Engineering Laboratories are planned by American Machine & Foundry Company for Stamford, Conn. In designing the campus-type center, architects Perkins & Will strove to "attain an academic appearance" and to "assure privacy for the surrounding residences." Estimated cost is $4 million. 2. The Mark C. Steinberg Memorial Ice Rink, donated to the city of St. Louis by Mrs. Steinberg, was designed for Forest Park by Frederick Dunn and Associates, in consultation with sculptor William Talbot of St. Louis. A fire pit has been added to the design, to be placed at the right end of the model as it appears in the photograph. 3. The Beverly Tower, a cooperative apartment house, will be built in Beverly Hills, Cal., at a cost of about $10 million. It will provide, besides 102 apartments, a swimming pool, cabanas, private gardens and a health club, and a "Sky Club," with dining facilities, on the roof. The architects are Pereira & Luckman. 4. The various Commonwealth agencies in and around Philadelphia will be consolidated in the Philadelphia State Office Building now under construction. The 17-story building will have an exterior of white marble, a lobby of glass mosaic tile. The building, which will cost an estimated $10,240,000, will contain 245,518 sq ft of space. In addition to the office building, plans also call for a garage to the west of the building handling 200 automobiles. The architects are Carroll Grisdale & Van Alen, Harbeson Hough Livingston & Larson, and Nolen & Swinburne*

1

2



3

4

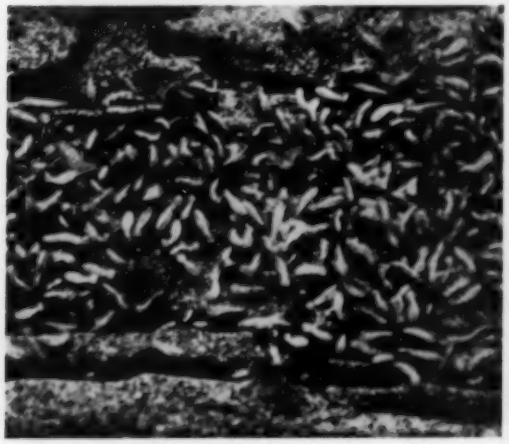
*(More news on page 16)*

BULLETIN No. 1993

# "Decay and Termite Damage in Houses"

Worker Termite
Greatly enlarged

Prepared by the DIVISION OF FOREST INSECT INVESTIGATIONS, Bureau of Entomology and Plant Quarantine, Agricultural Research Administration; and the DIVISION OF FOREST PATHOLOGY, Bureau of Plant Industry, Soils, and Agricultural Engineering.



Worker Termites—Natural size

*(Excerpts—Exact Quotation)*

"TERMITES are the most destructive of the insects that attack wood in houses. They eat the interior of the wood and may cause much damage before they are detected."

"Wood damaged by termites can be easily distinguished from decayed wood. Termites honeycomb the wood with definite tunnels; these are separated by thin partitions of sound, firm wood."

"Wood decay is caused by fungi, which are plants consisting of microscopic threads . . . the decay fungi weaken or destroy the fiber. These cannot work fast at temperatures below 55 to 60°F., and *not at all in dry wood*. There is no such thing as 'dry rot'; decayed wood is often dry after it has rotted, but not while the decay is taking place."

"The decay fungi soften the wood and in the final stages cause it to shrink and crack or crumble."

---

Scientific multiple aluminum, by insulating against vapor and heat flow, keeps the area beyond the insulation colder and drier, thus retarding fungus growth and timber rot.

"10 Essential SAFEGUARDS AGAINST TERMITES AND DECAY"
will be found in U.S. Bulletin 1993,
obtainable free by sending the coupon.

Infra Insulation Inc., 525 Bway., N. Y., N. Y. Dept. R12
**Manufacturers of Scientific Multiple Aluminum Insulation, which retards Fungus Growth and Timber Rot.**

Please send Govt. Bulletin No. 1993.

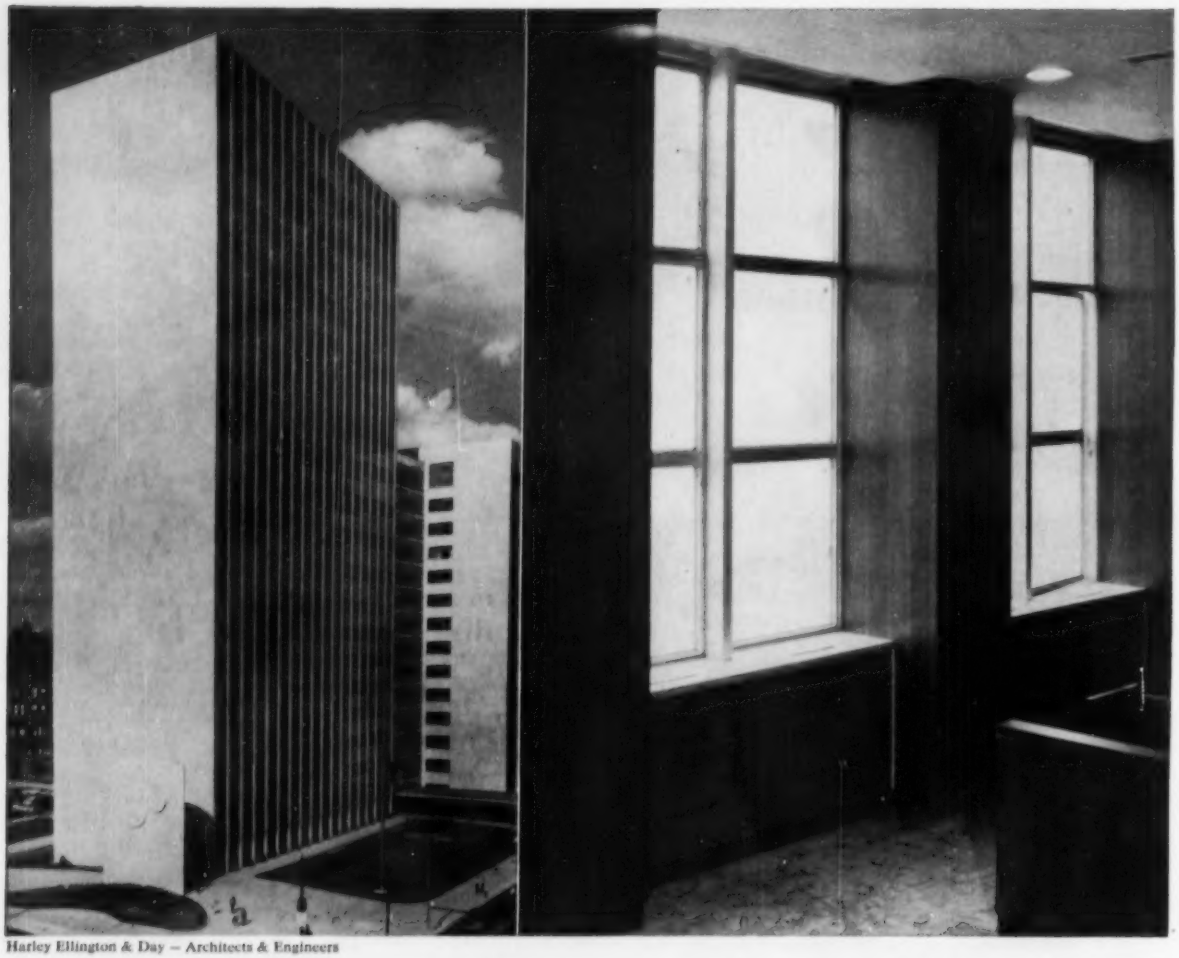
Name_____

Firm_____

Address_____

A water-conducting fungus attacked untreated oak piers of this 5 year old house and continued to decay sills, joists, and studs to a height of 6 ft.

USDA Photographs



Harley Ellington & Day — Architects & Engineers

# CITY-COUNTY BUILDING IN DETROIT INSTALLS 3,600 BUENSOD-STACEY DUAL DUCT AIR MIXING UNITS

*Here's why*

The pioneer work done by Buensod-Stacey made the Buensod Air Mixing Units the only ones suitable for an installation of this magnitude. Here are the advantages they offer —

**The engineers found them efficient.** They are the only dual duct mixing units with a self-contained, completely automatic volume control. This control maintains the desired supply of conditioned air regardless of variations in pressure at the inlet.

**The contractors found them practical.** The automatic volume control, when once set, does not need rechecking. Adjust one nut and the unit delivers the required air volume.

**The architects found them flexible.** They allow each individual room to maintain its own separate temperature. You can heat one room and cool the one next to it.

**The owners found them economical.** One system conditions the entire building — needs no seasonal changeover. There is no local air recirculation — therefore no need for individual circulating fans. There is no need for a separate heating system.

**The occupants find the result — totally comfortable.** The Dual Duct system provides completely filtered air, at any desired temperature, at all hours of all seasons. The mixing units are *quiet* — they are acoustically treated to eliminate noise. They are not drafty, but diffuse air evenly, steadily throughout the room.

Buensod Dual Duct Mixing Units are useable in large or small, existing or new buildings. Application data available for consulting engineers and contractors.

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Charlotte, North Carolina Richmond, Virginia

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WHEN Simpson acquired the properties of M & M Wood Working Company it was news—but the BIG news to architects is that the combined resources of Simpson *and* M & M now provide a single dependable source of fir and redwood plywoods, plywood specialties, and flush and panel doors.

This means that architects can specify Simpson-M & M plywoods and doors with assurance of the same uniform high quality that has characterized the products of Simpson since 1895 and M & M since 1905.

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SINCE 1895

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| Simpson-M&M | BIRCH AND KNOTTY PINE |
| Simpson-M&M | TEXTURE 1-11, LONG LENGTH, JUMBO AND BOAT PANELS |

**. . . AND THESE BRANDED DOORS**

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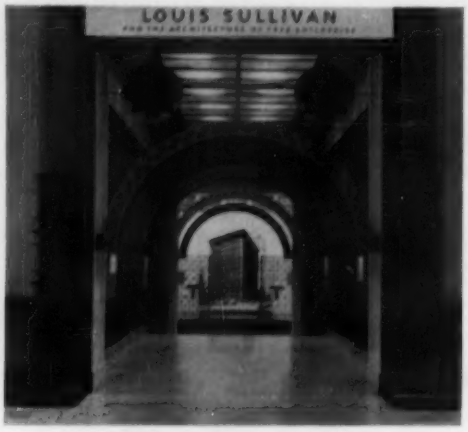
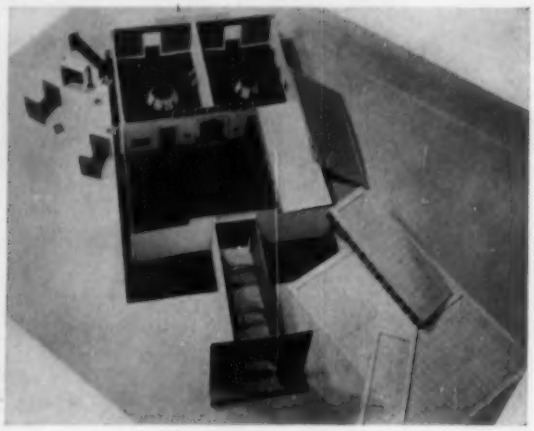
GENERAL OFFICES IN SHELTON, WASHINGTON

SLO-61C

 *(Continued from page 12)*



## THE SULLIVAN CENTENARY EXHIBITION:

## IT PRESENTS THE "RICH TREASURE" OF HIS WORK BUT WANTS CONTEXT AND "RELEVANCE"

***A review by Frederick Gutheim***

The Sullivan centenary exhibition in the Chicago Art Institute will be extensively circulated following its showing there, which ends December 2. Much of its news interest had been dissipated by the notices of John Szarkowski's picture book.* That the exhibition appeared as fresh as it did must be attributed to the efforts of its director, Edgar Kaufman.

From the entrance, where Sullivanesque barrel arches faced with photographic reproductions of the architect's distinctive ornamental designs announce the intention to do more than mere photography can, one is prepared for an unusual exhibition. In later galleries use is made of elevator grilles, hardware, skylights, woodwork and other building elements. There are excellently installed small transparencies, essential to an understanding of the richness and colorful qualities of Sullivan as an *art noureau* architect, and some unfortunate experiments in rear-projected color slides. The galleries of the Art Institute are painted and papered here and there with reproductions from Sullivan's work. But the result, in the end, is a predominantly photographic exhibition. But after all, outside a few blocks away, are the Sullivan buildings themselves.

Chicago and Sullivan was no love affair, as Frank Lloyd Wright has insisted for many years, most recently at the A.I.A. dinner preceding the opening of the exhibition. Sullivan's most typical buildings were built elsewhere — the Wainright and Guaranty office buildings, the mid-western banks. Apart from Max Dunning, Elmslie and a devoted handful, the city's architects' neglect was more remarkable than the city's own indifference. Outside Chicago Sullivan had many more contemporary admirers, and in 1923 at the time of his death his position in American architecture was secure. The profession itself had solicited "The Autobiography of an Idea," had published it in the *Journal* of the American Institute of Architects and as a book. But Sullivan drank himself to death in the Cliff Dwellers Club and was almost alone when the end came in a cheap hotel. If the preservation of an architect's buildings is a proper mark of the value we put on his work, there is small evidence that Chicago yet acknowledges Sullivan. It is impossible to accept the Sullivan exhibition as evidence of this. It is hardly expiation. Rather, like Sullivan's own experience in life, it is the creation of a handful of devoted admirers.

The enthusiasm of these devoted admirers sustains their excursions into Sullivan memorabilia. We are given childhood photographs, youthful drawings, the family album. But enthusiasts often forget that others do not know as much. The exhibition shows little of the general historical background. A few astonishing photographs of Chicago ruins after the great fire suggest what this might have contributed to the exhibition. But didactic portraits of Herbert Spencer, Richard Wagner and other "influences" show us little. The resources of contemporary documentary photography, sampled in such work as the notable series of pictures J. W. Taylor took for the Chicago Architectural Photographing Company, are used only as they fall within the limited area of architecture. Nothing is done to create a general sense of the gas-lit, horse-drawn, sanctimonious and isolated city in which Sullivan chose to work, much less its cultural horizon and taste.

If the exhibit lacks a contest, it likewise lacks direct relevance. The effort to relate Sullivan's work to current practice is a failure. While it is certainly true that Sullivan's interest in structure, and his creation of architectural ornament and decoration, have parallels in the work of other architects, past and present, this is hardly a relationship, much less evidence of influence. The story of Sullivan and his clients, also a Szarkowski theme, is more successful. The architect's relationship with Dankmar Adler, his ideological debt to John Edelman, and other biographical enigmas are left in obscurity. But if this exhibition does not answer all the questions, it does succeed in dramatizing, presenting and emphasizing the rich treasure of Sullivan's work. Its medium is photography, and in the end one only wishes there were more of it.

The catalog† of the exhibition is of exceptional value to Sullivan students. It cpntains useful bibliographies, source lists, manuscript lists, photographic credits, and similar information, and is a worthwhile addition to the other Sullivan books due for publication this year, and to Hugh Morrison's standard work.

*(More news on page 17)*

* John Szarkowski. The Idea of Louis Sullivan. University of Minnesota Press, 1956.

† Louis Sullivan and the Architecture of Free Enterprise. Edited by Edgar Kaufman Jr. Chicago Art Institute, 1956.

# *How to reach an entirely new class of clients...*

**design around Butler components to reduce costs—serve clients who otherwise could not afford architectural services.**

Many architects have already discovered how to serve an entirely new class of clients who formerly couldn't afford architectural services. They are able to do this through the Butler Building System. Here's how it works:

These architects start with Butler steel structurals and roof system. The preliminary engineering is complete, the mass-produced components cost less than custom fabrication, and fast erection keeps construction costs to a minimum.

They combine these functional components into distinctive, modern buildings that fit their client's individual needs. In many cases, they cost less than ordinary buildings put up without the benefit of architectural services.

Through the Butler Building System, these architects gain access to new clients. And their clients get better buildings per dollar.

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Beautiful, functional school combines large areas of glass with brick walls.

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Floor above illustrates natural color variations in Birch Woodgrain KenRoyal Vinyl. Wall Base is brown Kencove.

# New WOODGRAIN KENROYAL plank style vinyl... easy-to-clean resilient floor with the look of fine hardwood

Panel below shows Mahogany Woodgrain.

Something your clients have always wanted . . . the distinctive look of gleaming, freshly waxed wood floors without the care these demand. New Woodgrain KenRoyal vinyl flooring, more beautiful than wood itself, is now available in smart new 4"x36" plank style in Standard Gauge (.080") and ⅛" gauge. Stunning Birch and Mahogany colors provide the natural variation of shade found in hardwood flooring; give you new decorating freedom for every type of room.

Woodgrain KenRoyal is homogeneous vinyl; long-wearing, resilient, greaseproof, and one of the easiest floors to clean. Tile-deep colors won't wear off. It can be installed on any firm, smooth, clean interior surface; even over concrete that is in contact with the earth if KenGrade (660) Adhesive is used, providing slab is 12" above surrounding grade level and drainage is away from the building. For samples write on your letterhead to Kentile, Inc.

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SIGNS AND SYMBOLS and Daniel Webster: The recent study on Commercial Signs and Symbols (AR, Sept. 1956, pages 241–272) inspired Samuel Cabot Jr., treasurer of the Boston firm of paint and stain manufacturers, to write a pleasantly laudatory letter to the RECORD in which he recalled the story of a famous New Hampshire symbol and New Hampshire's most famous son. "Some of his fellow Senators were deriding Daniel Webster on New Hampshire's lack of manufacturers and industry. He replied as follows: 'You know how in small towns the various factories and shops display large symbols of what they make. For example, the locksmith will hang a giant key from his door, the shoemaker will display a large boot, etc. Know then, gentlemen, that in the granite hills of New Hampshire the Lord hath displayed a Great Stone Face to show to all the world that New Hampshire makes men!' "

NOTHING SUCCEEDS LIKE ARCHITECTURE: Eero Saarinen's General Motors Technical Center has had since its inaugural in May "publicity" of a kind and quantity public relations men only dream about. The architectural journals, of course, recognized the importance of the project with all kinds of special presentations; but the interesting aspect of the coverage has been the reaction of magazines in very different fields. That hard-headed trade magazine *Factory*, for example, in a six-page article (*with* architectural credit) in its June issue: "The magnificent and imaginative facility pictured on these pages is not a plant [and therefore not normally *Factory* material]. But every square inch of General Motors' 320-acre Technical Center in Warren, Mich., is packed with ideas that will set a hot pace for planners of industrial plants for many years to come. Many hard-headed plant men will marvel at the beauty of the new buildings (25 in all, housing 4000 employes) but dismiss them as monuments. Don't make that mistake. It's true that GM has frankly striven for beauty. But much of that beauty stems from exciting new materials, design and construction features that are strictly practical, can be used by anyone." Or another strictly-business publication, *Electrical Construction and Maintenance*, in a seven-page article in *its* June issue: "To General Motors executives, project architect Eero Saarinen & Associates (Bloomfield Hills, Mich.), and architect-engineers Smith, Hinchman & Grylls Inc. (Detroit), the Center represents the best possible facilities for industrial research in science and technology. It fulfills all the functional requirements, yet achieves an esthetic freedom seldom found in office and shop buildings. It expresses the forward-looking industrial character with buildings and facilities which will look as modern tomorrow as today." At a different end of the publication zodiac, you might not think a shelter magazine would feel it necessary to cover the dedication of a group of new industrial buildings, but *sic House & Garden*, in a four-page article including a full-page four-color photograph: "Inspiration from a grand design," the piece was headed. "A fresh stimulus to industrial architecture, the new General Motors Technical Center also promises limitless ideas for houses of the future." Well, these are only samples; there's been much, much more. The non-architectural publications were interested in *this* architecture.

SIDEWALK SUPERINTENDENTS have by now achieved real status in the construction process. It doesn't seem *so* long ago that it was news when management provided holes at a convenient range of eye levels in the fence surrounding a construction site to spare insistent watchers the necessity of poking their own. This is standard practice now, but owners keep finding new gimmicks with which to woo the kibitzers. Last summer, for instance, Seagram's came up with multi-lingual recordings providing a neat digest of information about their new building for the benefit of watchers at the Park Avenue and Fifty-fourth Street site in Manhattan. "Sidewalk Superintendents Club" membership cards are another amiable gesture, and this note is in fact inspired by one of these issued in the name of the Argo, Ill., State Bank and sent on a while ago by their architects, Walter H. Sobel and J. Stewart Stein of Chicago. The privileges of membership: "1. To supervise all construction of the building, in your own inimitable fashion. 2. To figure ways and means in which it might have been done had you been consulted first. 3. To prophesy disaster because your tactful suggestions are being ignored meticulously. 4. To make and cover all side bets concerning date of completion, date of collapse or date of discontinuance. 5. To assure you front-row standing room in order to get a better view. 6. To accept the full burden of praise when building is completed. 7. To entitle you to attend the Grand Opening ceremonies." What more could even a *client* ask?

THE WORLD WE LIVE IN: "Armed Forces to Build and Operate Ten Earth Satellite Tracking Stations," headlined a recent release from the Department of Defense. . . . The number of industrial users of radioactive isotopes has increased more than 500 per cent within the past five years, a recent Atomic Industrial Forum survey showed. . . . The nation's construction volume of all types may rise 30 per cent to nearly $78 billion a year by 1965, according to the calculations of a special committee on material supply of the Associated General Contractors of America. . . . "The same region that gave birth to Davy Crockett, the Tennessee Waltz and famous Oak Ridge has now created an Atomic Pencil," relates an altogether breathless communication from the Kingston Pencil Corp. of Chattanooga. "The first writing instrument in the history of mankind to contain atomic uranium ore" uses same frankly for display — in a transparent plastic cap at the eraser end of the pencil — and sticks to lead for the writing end. Well, there's an architectural angle: the Atomic Pencil made its public debut at the recent A.I.A. Gulf States Regional Conference on — remember? — Architecture in the Nuclear Age. This department's reporter on the scene says the resulting scramble was terrific.

(*More news on page 21*)

# it's NEW...
# it's WIDE...
# it's BRIGHT

**MicroRold® STAINLESS SHEET**

**Type 430 Bright Finish**

## up to 48" WIDE

BRIGHTER THAN EVER!—MicroRold stainless steel Type 430 in the NEW Bright Finish is now immediately available in sheets up to 48" wide offering new usefulness and economy in stainless fabrication. Produced with the same micro-accuracy of gauge for which MicroRold 36" is well known, Type 430 Bright up to 48" wide gives greater latitude in applications for quality stainless steel.

MicroRold 430 is also available in the regular commercial finishes and MicroRold stainless in other grades are now produced up to 48" wide. Complete details sent on request.

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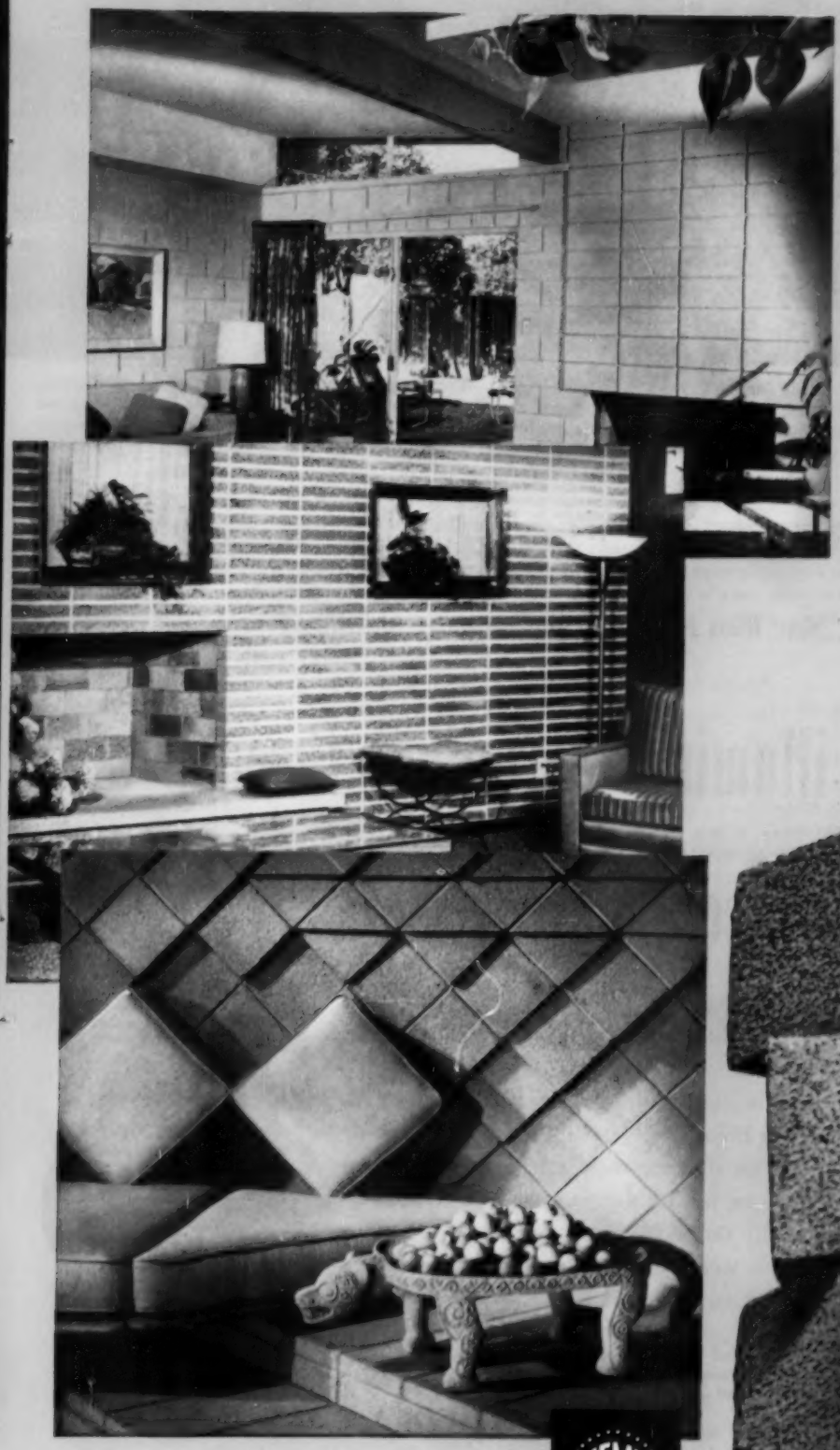
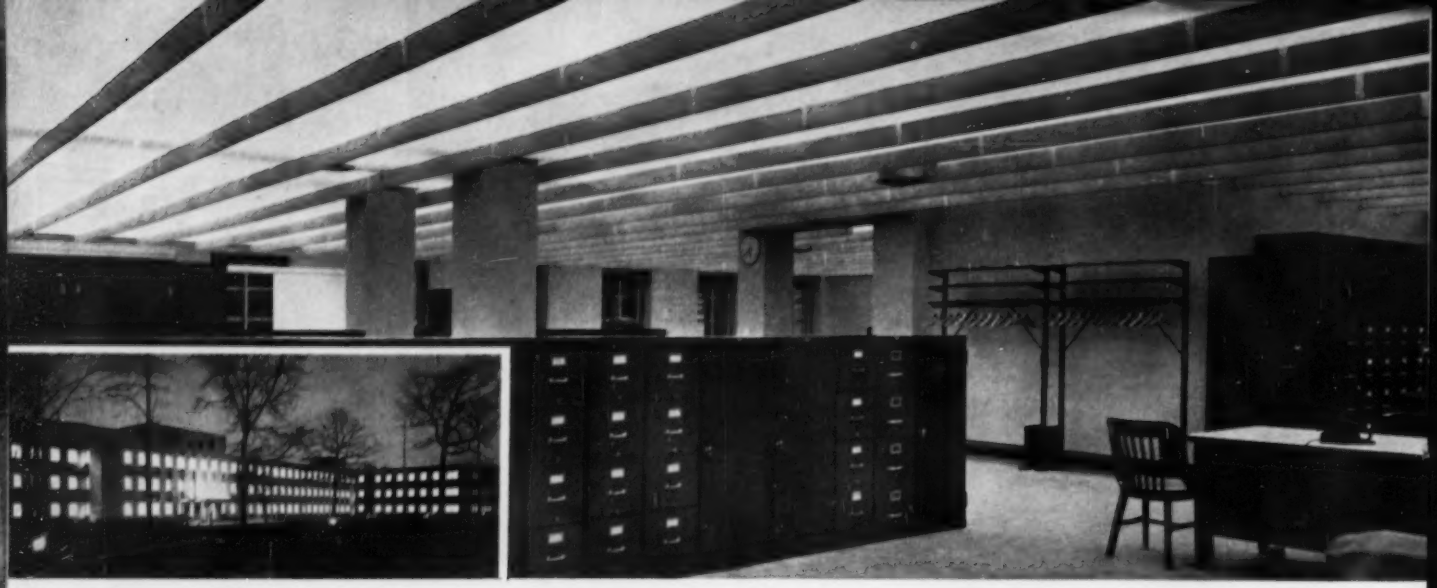


You can keep up to date on block by checking with your local NCMA member—he has all the facts. Call him soon.

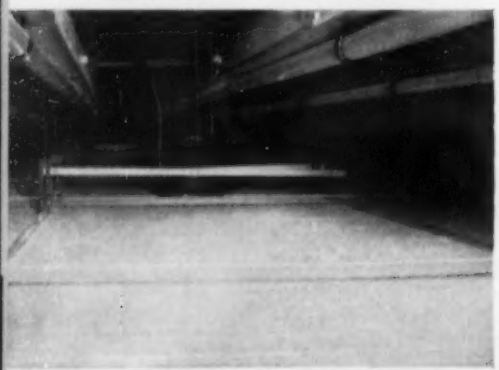
NATIONAL CONCRETE MASONRY ASSOCIATION • 38 SOUTH DEARBORN • CHICAGO



Cabin Hill, new central office of West Penn Power Company, Greensburg, Pa., has almost 90,000 square feet of illuminated ceilings. The ceiling components by **Sylvania Electric Products Inc.**, Wheeling, W. Va

The illuminated ceilings were planned to give office workers the benefits of high intensity lighting, free from annoying glare and shadows. The lighting level of each location is designed to fit the work in that area... for example, 130 foot candles in the drafting room. Accoustical baffles cut down noise.

The ceiling panels, made of BAKELITE Brand Rigid Vinyl Sheet, slide into pre-formed channels. Thus, they are easily removed for cleaning, replacement of fixtures, or other maintenance.



There are seven miles of fluorescent tubing mounted above the ceilings at Cabin Hill. The sprinkler system, air-conditioning ducts, and wiring are all concealed above... a UL approved installation.

*New West Penn Power Company building features*

# illuminated ceilings throughout offices and corridors

Better lighting, better appearance, and economical construction result from specifying illuminated ceilings made of BAKELITE Brand Rigid Vinyl Sheet. They won't warp, crack or discolor with aging. They resist moisture, oil, combustion, and are dimensionally stable. They clean easily, and are light in weight for easy handling. For complete data, write Dept. VO-3.

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### *Dodge Adds Three Magazines*

F. W. Dodge Corporation announces the acquisition of three national magazines and a nationally distributed hospital catalog through purchase of The Modern Hospital Publishing Company, Inc. and Purchasing Files, Inc. with head offices in Chicago. The magazines, leaders in their respective fields, are *The Modern Hospital, The Nation's Schools,* and *College and University Business;* the catalog is the *Hospital Purchasing File.*

A joint statement by Howard Barringer and Raymond P. Sloan, presidents of the affected companies said: "The specialized services of the hospital, school and college magazines, as well as the hospital purchasing file, will complement the publications and services of F. W. Dodge Corporation to the mutual advantage of our organizations and the important groups we both serve. We regard the consolidation of forces that has been worked out as being a definite advance for all concerned."

The growth and success of these magazines reflect unflagging efforts of Dr. Otho Fisher Ball and Raymond P. Sloan, as well as their associates, to serve the three important institutional fields. Dr. Ball died in 1953 and Raymond P. Sloan has since been president of both corporations. Mr. Sloan is nationally known as an authority on hospital practice and is a vice president and director of the Alfred P. Sloan Foundation, Inc., Memorial Center for Cancer and Allied Diseases, New York, and has many hospital and educational affiliations.

No major change in corporate or operating organizations is contemplated. Mr. Sloan will become chairman of the boards of directors of The Modern Hospital Publishing Company, Inc. and Purchasing Files, Inc. and Howard Barringer, president of F. W. Dodge Corporation will become president and a director of both companies. Robert F. Marshall and Judd Payne, vice presidents jointly in charge of F. W. Dodge Corporation's magazine and book division will become vice presidents and directors of the newly acquired companies. All of the other present officers and directors of The Modern Hospital Publishing Company, Inc., and Purchasing Files, Inc., will continue to serve in their present capacities and the head offices of the two corporations will remain at the present address, Palmolive Building, 919 North Michigan Avenue, Chicago, Illinois.

### *New Annual Award: $25,000*

A $25,000 annual architectural award has been established by the Reynolds Metals Company to be given to "the architect who, in the judgment of his profession, has made a most significant contribution to the use of aluminum, esthetically or structurally, in the building field." The R. S. Reynolds Memorial Award, by far the richest annual architectural prize in history, will be open to architects of all nations for work done in any country. Recipients will be chosen by "a committee of distinguished architects working under procedures established with the counsel and cooperation of the American Institute of Architects." The Award may, if circumstances require, go to two or more architects. Preference will be given to work completed during the 12 months preceding an award, but the judges, if they wish to do so, may acknowledge earlier work in selecting recipients. Announcement of the Award was made last month at a dinner in New York by R. S. Reynolds Jr., president of Reynolds Metals Company. The New York dinner, a most elaborate and festive affair at the Waldorf-Astoria Hotel, honored the publication of two major studies sponsored by the Company — "Aluminum in Modern Architecture," Volume I, by John Peter, and "Aluminum in Architecture," Volume II, by Paul Weidlinger (Reinhold Publishing Company, distributors).

*Richard Reynolds Jr.*

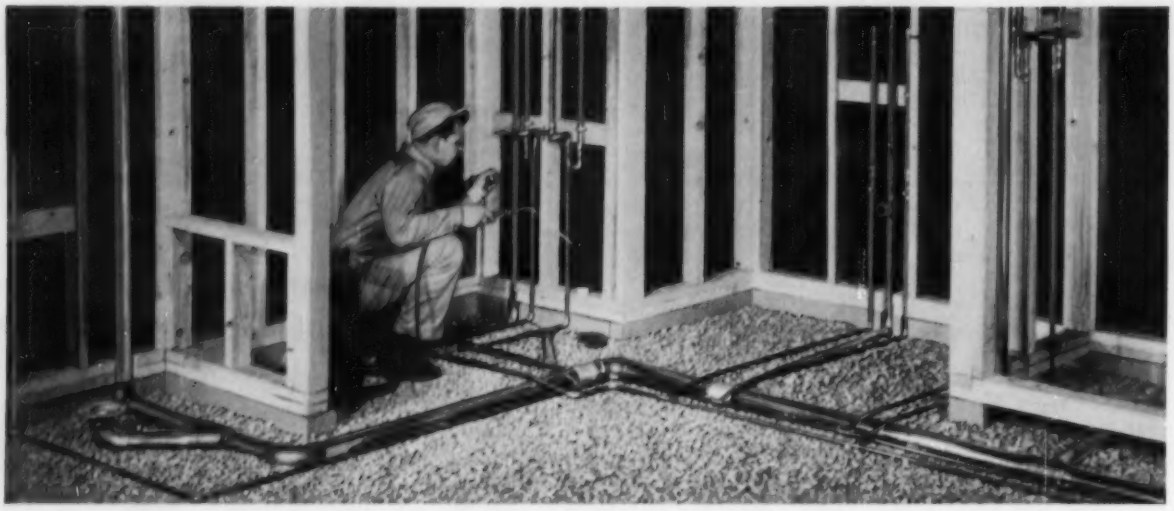
### *SCPI Hears A Challenge*

More than 800 delegates to the annual convention of the Structural Clay Products Institute in Boca Raton, Fla., last month, heard RECORD editor-in-chief John Knox Shear urge them to take a realistic view of the matter of competitive building materials and a positive approach to insuring increasing markets for themselves. Instead of dissipating effort on battling any and all uses of competitive materials, Mr. Shear suggested they focus their efforts on the truly tremendous possibilities for expansion of their markets in the many areas of use for which brick and tile are superbly and in some ways uniquely fitted. He thought manufacturing might do well to concentrate research on development of a truly light-weight through-the-wall unit and noted that the use of clay products for such building elements as, for example, paving (both indoors and out), garden walls and screen walls for sun control could benefit greatly from current architectural trends. In

*(Continued on page 24)*

*— Drawn for the* RECORD *by Alan Dunn*

*"Instead of a stained glass memorial window, how about an air-cooling package?"*



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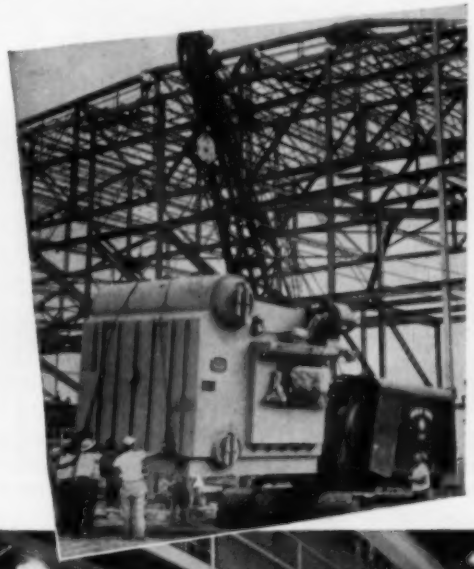

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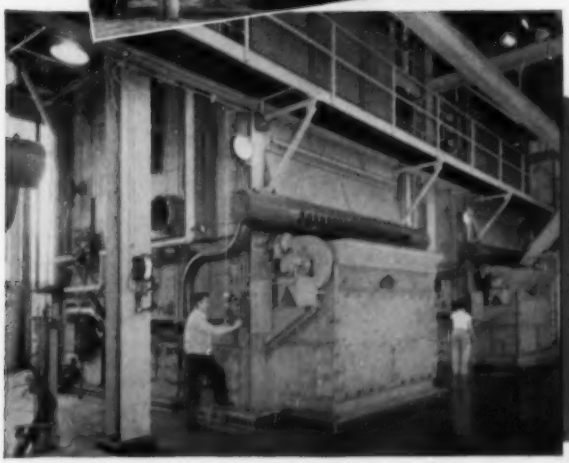

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## THE RECORD REPORTS

## MEETINGS AND MISCELLANY

*(Continued from page 21)*

general, Mr. Shear said he believed architects tend to feel that heavy materials which express themselves as heavy should be kept near the ground; used in this way, he added, clay products can be a rich source of delight in architecture, and he thought this aspect of their function was not always as fully promoted as it deserved. Delegates also heard from market analyst Dr. Robinson Newcomb that his study of preliminary figures from the Bureau of Labor Statistics indicated that 38 per cent of the houses built this year would be of brick — a 15 per cent increase over last year and a big step toward the SCPI goal of 50 per cent by 1960. It was announced at the meeting that the Board of Directors had reelected the complete slate of 1955–56 officers: John R. Stewart of Stark Ceramics, Inc., Canton, Ohio, president; Kenneth W. Dunwoody, Cherokee Brick & Tile Co., Macon, Ga., vice president; George Gammie, Illinois Brick Co., Chicago, treasurer, and Joseph J. Cermack, SCPI, Washington, D. C., secretary.

### *With the A.I.A.*

**Western Mountain** — "People — Resources — Architecture" was the theme of a conference that drew nearly 300 to Salt Lake City for the fifth annual convention of the A.I.A. district comprising Arizona, Colorado, New Mexico, Utah and Wyoming. "We need an environ-

*(Continued on page 28)*

*100 YEARS OLD AND "STILL ACTIVE" — John K. Neebe of Chicago, a registered architect in Illinois since 1897, celebrated his 100th birthday November 17. Born in Germany, Mr. Neebe became a U. S. citizen in 1887, has been a member of the Illinois Society of Architects since 1914. He still maintains his office*

*A.I.A. NORTHWEST REGIONAL CONFERENCE snapshots — (Left) Regional Director Donald Stewart of Portland; John S. Detlie, A.I.A.; structural engineer Edgardo Contini of Los Angeles; William L. Pereira, A.I.A., and Garrett Eckbo, landscape architect, both of Los Angeles. (Right) A.I.A. second vice president Philip Will of Chicago, Edgardo Contini, Director Walter Taylor of A.I.A. Department of Education of Research, and Mrs. Gilbert Wojohn*

*MORE CONVENTION SNAPSHOTS from architects' meetings around the country. Above left,* Architects Society of Ohio officers — *(From left, standing) Edwin C. Landberg, Cincinnati Chapter president; Eugene Schrand, retiring A.S.O. secretary; Anthony Ciresi, Cleveland Chapter president; Charles L. Barber, Toledo Chapter president; Hermon S. Brodrick, A.S.O. second vice president; Burl V. Stevens, Eastern Ohio Chapter president; William Wertz, Dayton Chapter president; David Pierce, A.S.O. treasurer; Harold W. Goetz, third vice president; and Clifford E. Sapp, executive secretary. (Seated from left) Leon M. Worley, retiring A.S.O. president; John P. Macelwane, new A.S.O. president; and Charles Marr, first vice president. Above right —* New York State Association of Architects *officers for coming year, reelected at recent annual convention at Lake Placid: (Seated) Trevor W. Rogers, president, and Harry Prince, first vice president; (standing) Martyn N. Weston, treasurer, John Briggs, second vice president, and Simeon Heller, secretary*

Modern Gymnasium of Troy School #16

## KILNOISE acoustic plaster specified for Troy's Public School #16 by

William R. Harrison

WILLIAM R. HARRISON, P. E.

OF HARRISON AND MERO, ARCHITECTS AND ENGINEERS, TROY, NEW YORK

Few places can be noisier than a school gymnasium full of healthy children. That was one reason why **KILNOISE** Acoustic Plaster was specified for the gymnasium of Public School #16 in Troy, New York. Used in stairways and corridors as well, **KILNOISE** adds clean, simple beauty to blend with overall modern lines of both interior and exterior.

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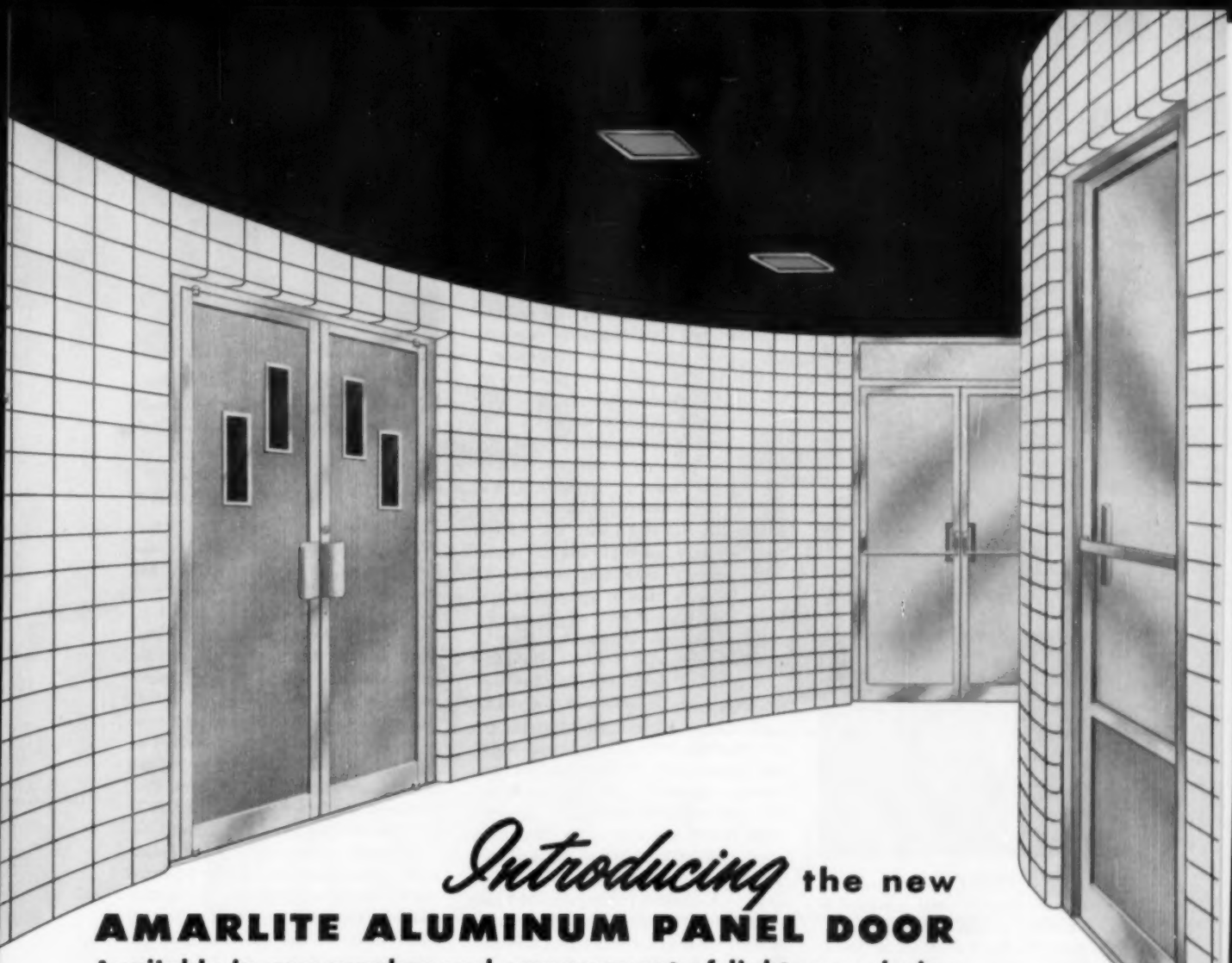

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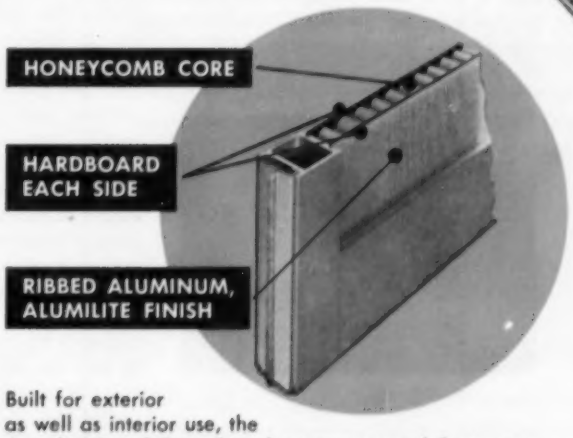


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## MEETINGS AND MISCELLANY

*(Continued from page 24)*

ment measured to men rather than cars," the conference was told by structural engineer Edgardo Contini of Los Angeles, whose subject was "Our Cities of Tomorrow." He emphasized that the kind of thinking now applied to replanning downtown areas must be applied to planning for the growth of the city as a whole. Speaking on "People and Architecture," Dean Sterling McMurrin of the University of Utah's University College warned that a distinctive architecture will not emerge from satisfying merely practical requirements. "To think creatively," he said, "is to discern what is deepest and foremost in a culture and to express this concretely," and he added, "If the culture does not have a sense of the sublime it is one in which no great and lasting art can be produced." RECORD editor-in-chief John KNOX SHEAR, discussing regionalism in architecture, distinguished between the "sentimental" kind of regionalism which results from a conscious effort to achieve regional "flavor" and which is therefore a self-conscious architecture of preconceptions, and the "byproduct regionalism" which results from architecture's simple effort to solve the problems of heat, cold, moisture, terrain, etc., with the materials and labor available. "If regionalism is provincialism," said Mr. Shear, "it is poison to the activation of good architecture. . . . But if it is a way by which the particular is allowed to play its part along with the general, then we have not neglected the region as a powerful generating source. . . . The architect should investigate and familiarize himself with *all* sources for the form he will develop, but then he must enter a period of architectural forgetfulness, of deep reflection, lest any one factor should move him too much. . . . It is our job as architects to resolve the tensions between the things which are specific and those which are universal, not meeting at a half-way point of compromise but at an apex on somewhat higher ground." School buildings were specifically related to the theme by two of the speakers, Philip Will of Chicago, A.I.A. second vice president, and John Lyon Reid of San Francisco, chairman of the A.I.A. Committee on School Buildings. Said Mr. Will: "The most important thing in schools is not the classroom. The neglected spaces in schools are the interstices that fit the working parts together. The difference between good and bad schools is in the treatment of those spaces through which people move." And Mr. Reid: "Education is more than a series of cell-like rooms connected with corridors where students expect to race back and forth as fast as possible for a certain number of Carnegie units, yet that basically is what state-aid invites architects to use as a standard for design. . . . The architect must maintain his position with the educator to seek out and push toward new concepts of education which will be characterized by some magnificent achievements not possible under a system of controls." Also on the program was discussion of Colorado River development, and the conference adopted a resolution authorizing a regional committee to work toward application of the principles discussed by the conference speakers to the Colorado development.

*BUST OF WRIGHT — carved of solid Honduras mahogany — was presented to FLW at recent annual convention of Architectural Woodwork Institute as "member of his profession who has contributed most to the creative use of architectural woodwork." Above: architect Cary Caraway, a former Wright apprentice, FLW — and bust*

*CHESTER B. PRICE (far right above) was honored as this year's only new Fellow of the A.I.A. from the New York Chapter at a luncheon sponsored by the New York Chapter of the Producers' Council last month at the Hotel Shelburne in New York. A.I.A. Past President Ralph Walker, F.A.I.A., and P. C. Chapter President William Morrissey joined in tribute, and a desk set was presented*

*STAINLESS STEEL award for* RECORD *article is presented to John Callender by A. O. Schaefer, Allmetal Screw Products president*

### *Another Award for the RECORD*

"The Design of Stainless Steel Curtain Walls," an article published in the October 1955 issue of ARCHITECTURAL RECORD (pages 239–246), has won for its author, John Hancock Callender, A.I.A., of New York, the First Annual Allmetal Stainless Steel Award of $1000, and for the RECORD a plaque for "editorial achievement." Mr. Callender's article was a condensation of a report on a two-year study in the Princeton School of Architecture undertaken at the request of the Committee of Stainless Steel Producers of the American Iron and Steel Institute and published by the Institute. The Award, open to all types of magazines, was sponsored by the Allmetal Screw Products Company of Garden City, N. Y. Presentation of the check to Mr. Callender — for the occasion he got one of stainless steel — and of the plaque to the RECORD took place at a luncheon in Cleveland sponsored by the American Society for Metals. At the same luncheon, individual "creative design awards" were presented by the Copper and Brass Research Association to Mies van der Rohe and Philip Johnson, architects of the bronze-sheathed House of Seagram now well under way on New York's Park Avenue. Mr. Johnson accepted the plaques for both.

*BRONZE award is presented by Theodore E. Veltfort of the Copper and Brass Association to Philip Johnson*

*(More news on page 32)*

## How to design

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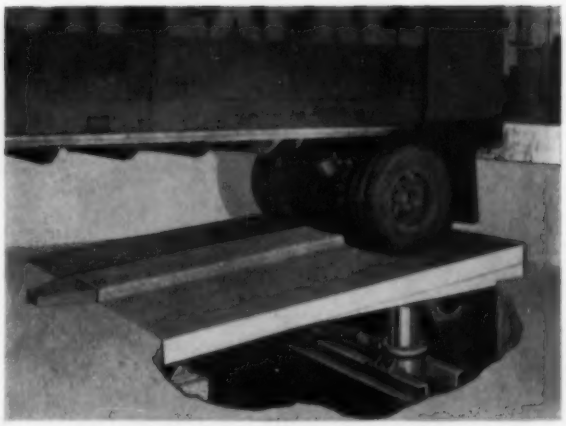

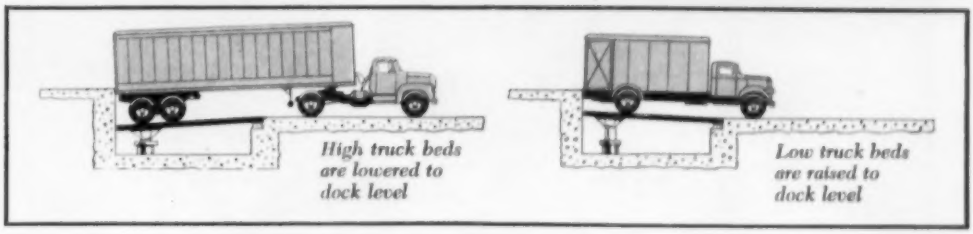

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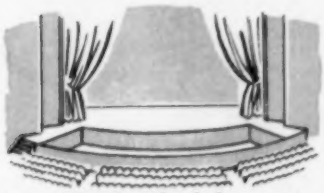
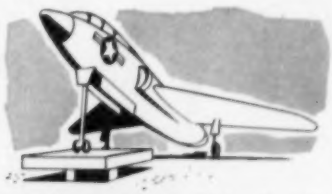


**Stage Lifts**—In school design, stage lifts are often used to raise portion of gymnasium floor to stage height when needed, saving on construction costs. Also used in auditoriums, music halls, other entertainment centers.



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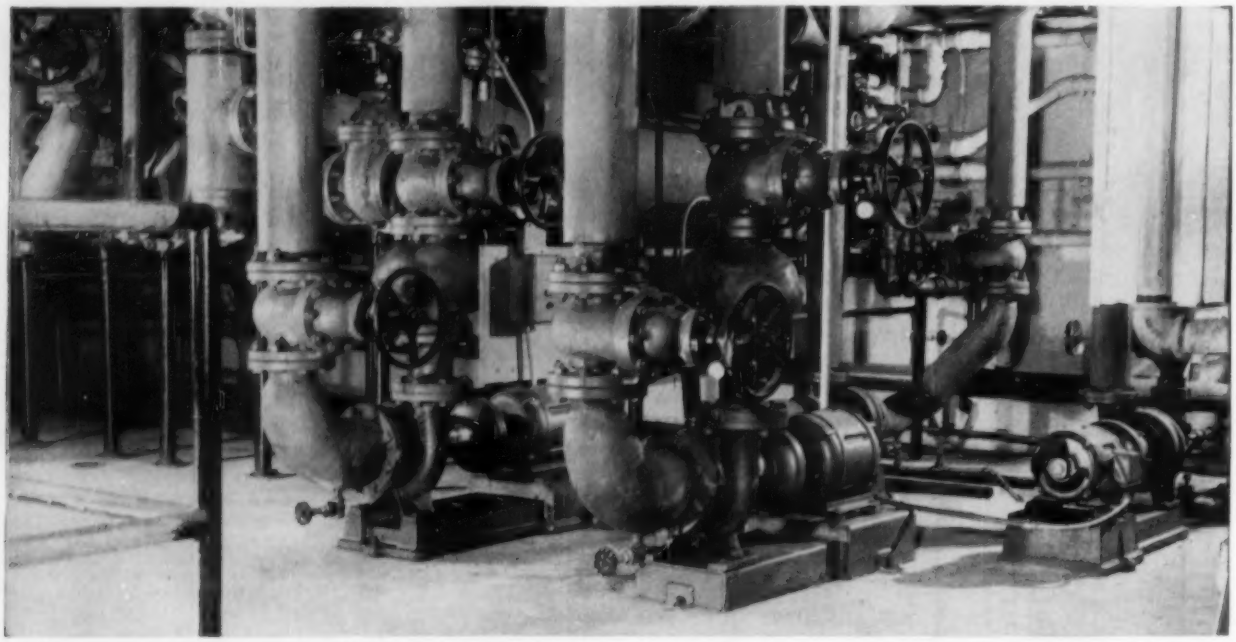
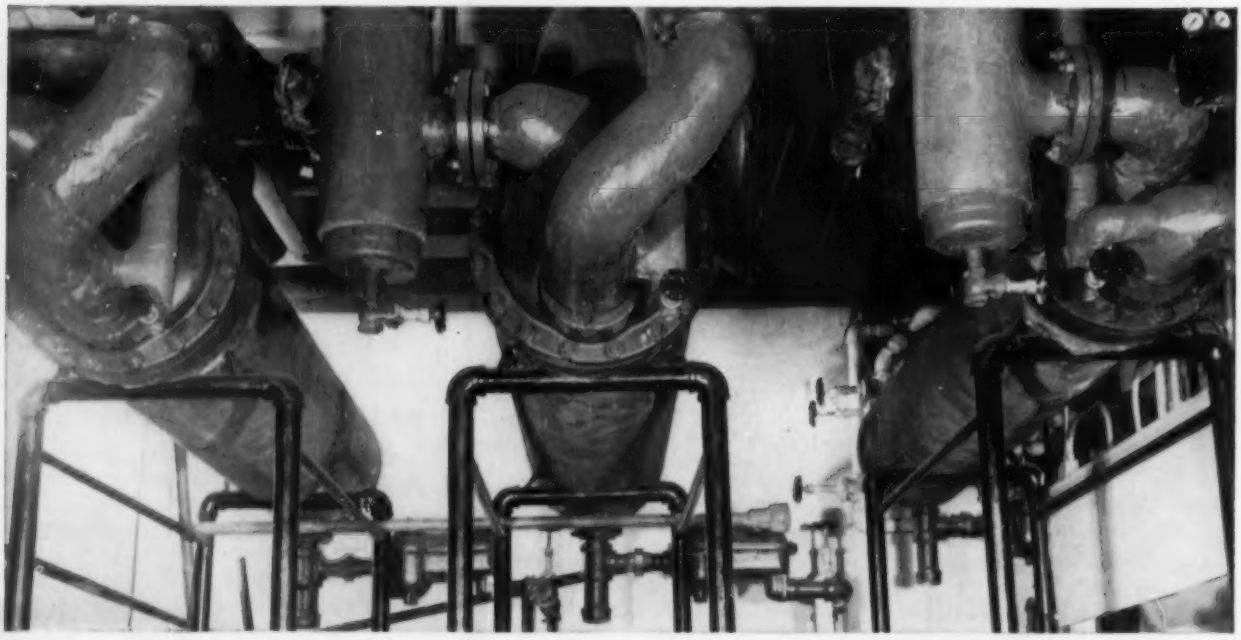


(above) *Battery of B&G Universal Pumps circulate a two-pipe, reverse return hot water heating system.*
(below) *Water is heated in these B&G "SU" Convertors connected to two low pressure boilers.*



*Gymnasium, Notre Dame High School*

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The uniquely designed gymnasium with cantilever-type roof is warmed with unit heaters, recessed and wall-mounted cabinet heaters. Radiant panels are used to heat the stage and shower room.

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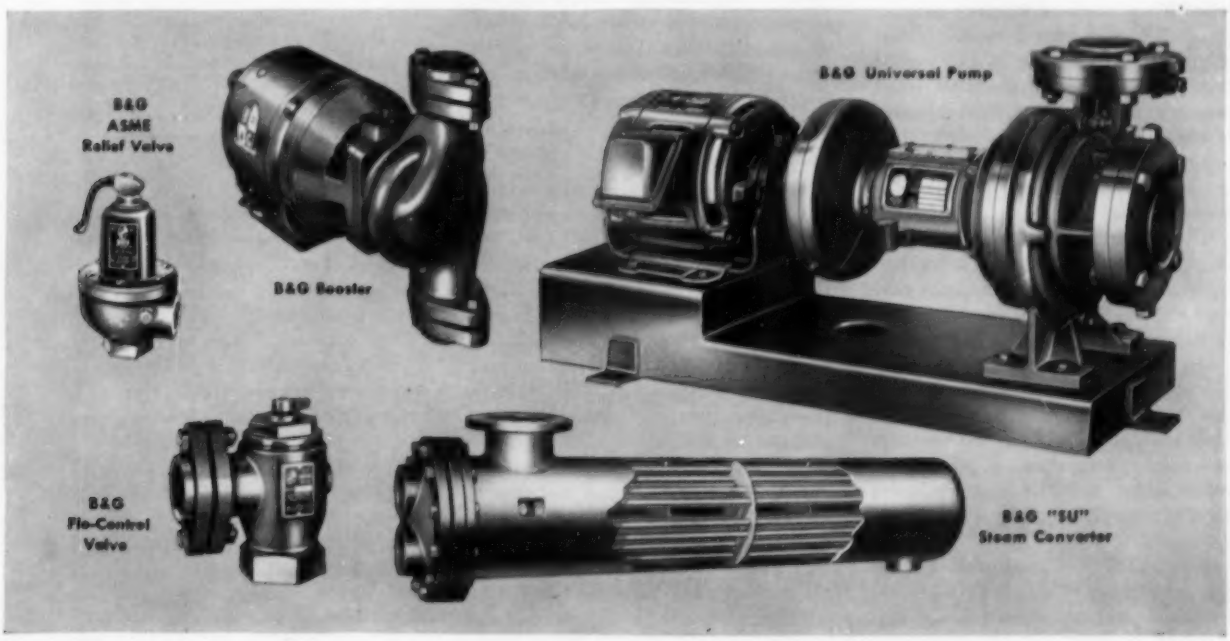

a **WASHINGTON** *report by Ernest Mickel*

# BRI'S FIRST MAJOR WORKSHOP CONFERENCE YIELDS QUESTIONS AND ANSWERS ON METAL CURTAIN WALLS

***Call for Development of Performance Standards; Agreement Reached on Several Basic Definitions***

The Building Research Institute has broken new ground in the architectural metal curtain wall field. A correlation conference on the subject last fall and the follow-up major workshop conference (BRI's first) in mid-October this year has amassed a wealth of new technical information on the subject.

Industry leaders agreed that these efforts spelled a good beginning toward accumulation of important new data on metal curtain wall construction through research. Throughout the workshop conference, roundtable leaders stressed the need for new performance standards. Task forces were recommended to determine these necessary performance requirements. Time and again the speakers referred to specific aspects of metal curtain wall construction and said that further research was needed badly.

### *What Hope for Action?*

What next? BRI's executive director, William H. Scheick, said that the many tasks suggested for the Institute by conference participants would be undertaken if the sponsors formally propose them. The recommendations perhaps could not be handled in the precise fashion recommended, but BRI could pursue the technology and development of criteria within the framework of its organization. By virtue of its operations, it could not establish exact standards or conduct tests.

The conference and workshop proceedings have established a solid basis from which to launch the technological explorations. The 1955 meetings (held in September) were informational and designed only to take an initial penetrating look at every aspect of metal curtain walls. Experts gave freely of their knowledge and from the two days of considerations came a proceedings report which, in BRI's view, represents the best summation of knowledge up to that point.

Now added to this earlier review are the proceedings of this fall's workshop conference with their multitude of suggestions for early testing and performance data. The workshop proceedings have been printed and are available from the Building Research Institute, National Academy of Sciences, 2101 Constitution Ave. N.W., Washington 25, D. C.

Director Scheick, at the more recent meeting, described the subject as a real new field and a real complex one. The parties involved decided after the 1955 sessions, he explained, that "within the Institute framework we have many of the companies and organizations, architects, engineers, interested in this subject, and that they could carry the art of metal curtain wall design and construction a step further with work-shop conferences in which they got down to brass tacks on some of the problems."

The workshop resulted and from it came the several suggestions for further study.

### *One Problem: Coordination*

It was proposed that BRI, through its advisory board, coordinate through a central committee the study and research programs of various industry and educational groups. This would lead to better knowledge of all that is being done research-wise in the metal curtain wall field.

### *Some Specific Proposals*

The Institute also was asked to publish presently accepted tolerances. And it was suggested further that the Aluminum Window Manufacturers Association study and standardize methods to provide watertight butt and mitre joints in the exterior member of the glazing recess. Architects' specifications should include the requirements for positive positioning means for proper glass installation as well as desired glazing technique, it was said.

It was agreed in one of the roundtable discussions that methods of testing metal curtain wall panels should be established by an appropriate organization, such as the American Society for Testing Materials, to be sure of the eventual development of uniform performance data for architects. Such test methods should be suitable for full scale panels and their joints, including panels of relatively large size.

There were these other proposals:

— Research should be undertaken to establish more precisely than at present the external and internal surface temperatures, water vapor pressures and other measurable factors to which metal wall panels are exposed in order to accurately establish design requirements.

— Performance standards developed through industrywide cooperation, such as those for sealants (standards for which have been established by the National Paint, Varnish and Lacquer Association), and the panel standards of the Porcelain Enamel Institute, and others, should be employed by reference wherever possible within the scope of the work for metal and glass curtain wall construction.

— The method for constructing satisfactory firestops and soundstops between floors at the metal curtain walls should be studied at once.

— Data on weatherability and permanence of finishes on metals used in metal wall construction should be developed by the industry and made available to architects.

### *New Vocabulary*

The proceedings of the workshop contain new nomenclature identifying various types of metal curtain walls:

1. *Sheath;* where no structural elements are indicated.

2. *Grid;* where there is an expression of the horizontal and vertical structural elements expressed with equal emphasis.

3. *Mullion;* vertical structural elements emphasized.

4. *Spandrel;* horizontal structural elements emphasized.

Supporting method formed the basis of a second suggested classification, a nomenclature subcommittee submitting two basic definitions to embrace the four design types. These were:

*(Continued on page 312*

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**ETL Report No. 362625, July 23, 1956.*

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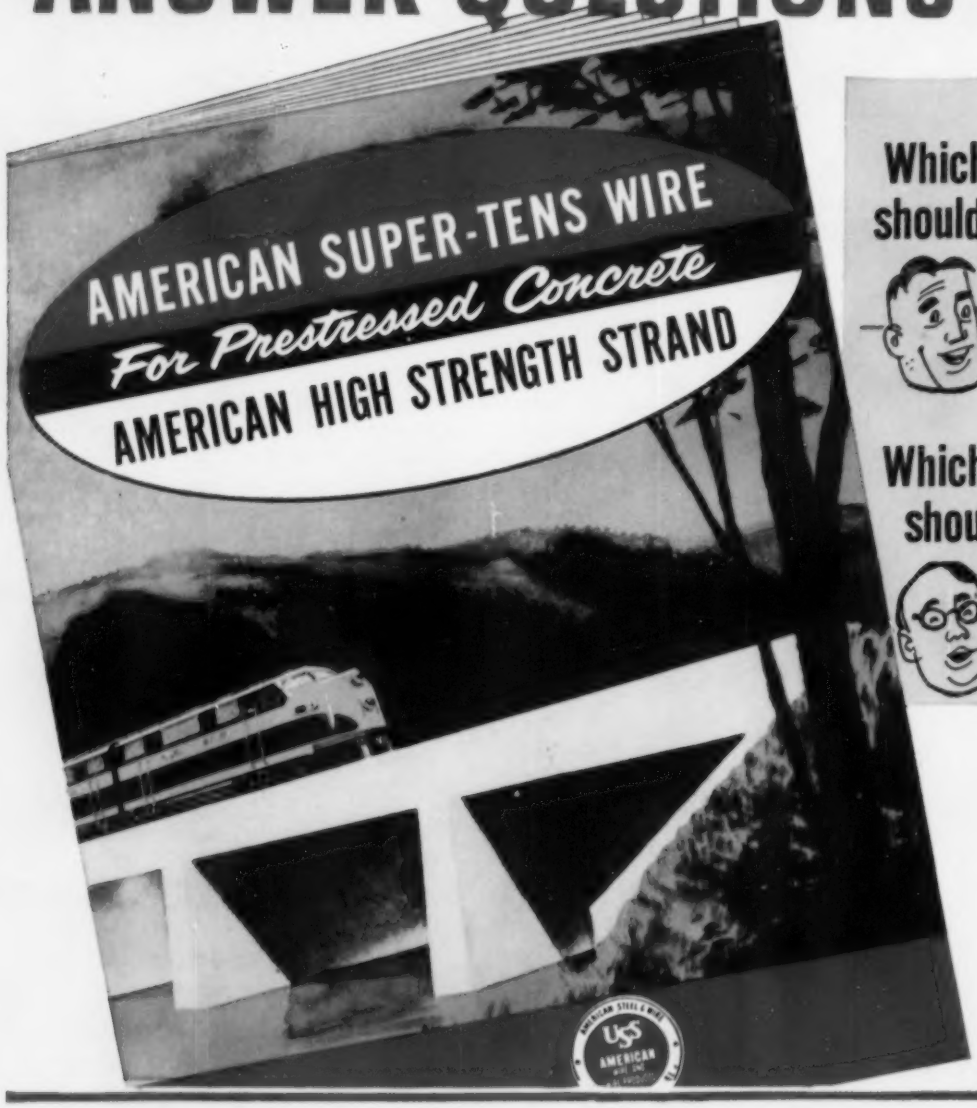
AMERICAN SUPER-TENS WIRE
For Prestressed Concrete
AMERICAN HIGH STRENGTH STRAND
Which WIRE should I use?
Which FITTINGS should I use?

USS AMERICAN *Super-Tens* WIRE & HIGH

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**SEND THIS COUPON FOR A FREE COPY.** This new 16-page booklet describes the complete line of high strength wire, high strength stress-relieved strand, and end fittings manufactured by American Steel & Wire. It contains stress-strain curves, typical tensioning loads and breaking strengths for American Super-Tens Wire and American High Strength Strand—quality products that are especially made for use in prestressed concrete. Send for your copy.

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# STRENGTH STRAND

UNITED STATES STEEL

*The first "terrace" plants in operation*

*Typical plant, for John Laing & Son*

*The administration building*

## DEVELOPERS SPECIFY GOOD DESIGN FOR ANNACIS INDUSTRIAL ESTATE

Good design, in the mind of the Grosvenor Estates, developers of an industrial site on Annacis Island in British Columbia, is not confined to "planning and zoning industries" and "ensuring that a good quality of building is maintained." They count on both of these requirements, but in their prospectus also promise to provide "attractive streets with pleasant landscaping and well-designed buildings and street furniture." Defining the architectural character of the Annacis Industrial Estate, the developers hope for "orderliness and efficiency by simple buildings grouped carefully with each other to avoid the clash of adjoining buildings which would tend to produce any restlessness to the street façade and overall planning." The Grosvenor Estates feel also that their tenants should not be inflicted with "raucous advertisement" and that "the appearance of his factory with designed name signs will be his advertisement."

Progress so far on the 1200-acre island, which is being developed in 200-acre packages, includes the completion of the administration building, ten "terrace" plants, with another six under way, and eight factories and warehouses, as well as a ninth which was scheduled to be occupied in October.

Zoning of the island, which will have no building but industry, calls for, eventually, heavy industry on the perimeter, with cores of medium industry, surrounded by light manufacturing, in the center of the area. The geography of the island permits deep-sea shipping as well as road and rail transportation.

*A designed pump house*

The permanent architect for the development is Francis Donaldson, who has succeeded H. Keith Allen in the position. The builder is John Laing & Son (Canada) Ltd., which a few months ago merged with the Grosvenor Estates to form Grosvenor-Laing, Ltd.

### N.R.C. COMPLETES LAST LINK IN RESEARCH STATION CHAIN

The last of the regional stations planned by the National Research Council's Division of Building Research has been opened in Vancouver, and will be known as the British Columbia Regional Station. Earlier, stations were opened at Halifax to serve the four Atlantic provinces, and at Saskatoon to serve the Prairie provinces; Ontario and Quebec are covered by the Division's headquarters at Ottawa. In addition, the division operates, during the summer months, its Permafrost Research Station at Norman Wells, where the new buildings were dedicated last June.

Heading the new Vancouver branch is Alan Veale, a 1955 graduate of the School of Architecture at the University of British Columbia.

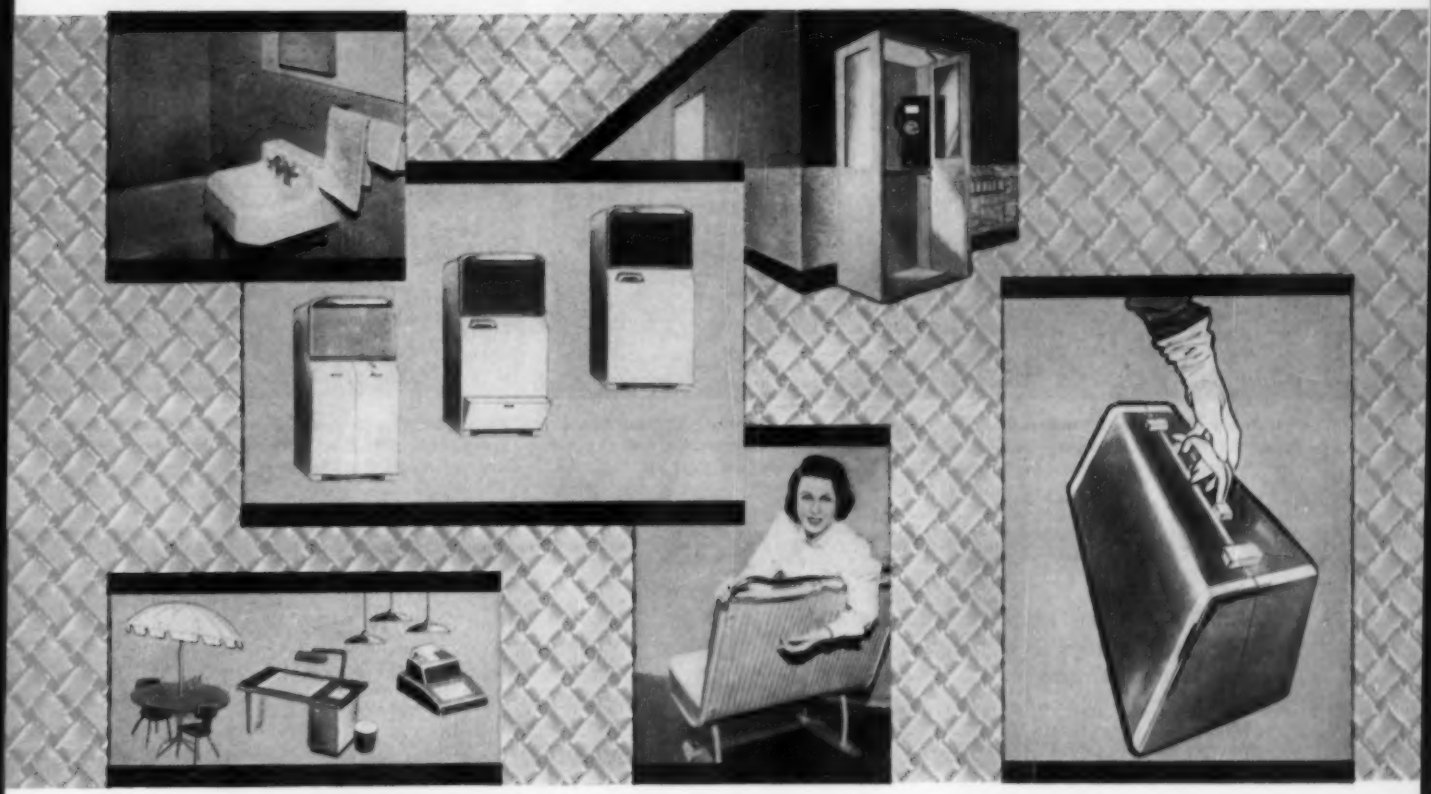
The purpose of these regional stations is to provide liaison between the building industry and the engineering and architectural professions, and between these groups and the Building Research Center in Ottawa. A special part of this function is in connection with housing development. The staffs in each of the stations are also in charge of the Division's regional exposure sites.

### EARLY ESTIMATES INDICATE ANOTHER RECORD YEAR IN '56

According to *The Financial Post*, Canadian construction seems likely to reach a new high in 1956, and will have suffi-

*(Continued on page 50)*

# Naugatuck Marvibond



## Marvibond*...the vinyl-to-metal laminating process that provides all these advantages...

- **available in flat sheets**
- **worked with standard metal-fabricating tools**
- **can't chip, crack, or craze**
- **eliminates costly finishing operations**
- **can't rust, rot, or corrode**
- **wipe-clean vinyl, easy to maintain**
- **attractive colors, practically any surface effect**
- **always comfortable, pleasant to the touch**

Marvibonded metals are laminated in flat sheets before the product is formed. However, neither finish nor bond is affected by bending, crimping, drilling, embossing, punching, or shearing.

Marvibonded metals provide your product with a "sales wise" finish far superior to paints, lacquers, varnishes, phenolic and alkyd finishes. The vinyl will not chip, crack, or craze. Practically any surface effect can be achieved, economically, and they're all chemical-, abrasion- and weather-resistant.

This exceptional material has a great future in wall paneling, doors, vending and business machines, office furniture and automobile interiors ... in fact, where most sheet metal is used. For samples, technical information, and the location of licensed laminators in your area, please write us on your company letterhead.

*Patent applied for

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Naugatuck Chemical Division

**Naugatuck, Connecticut**

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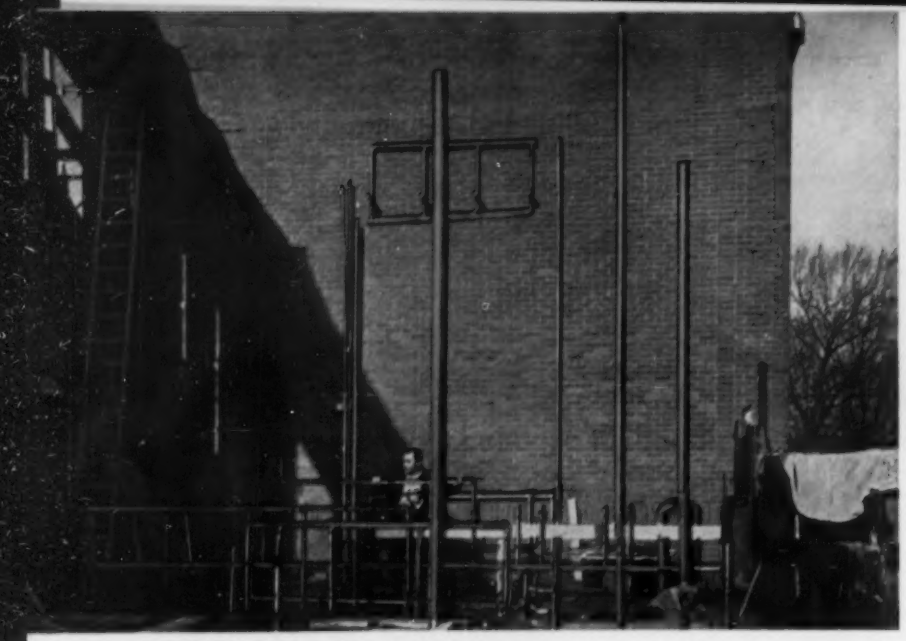

**Installation can keep ahead of building construction.** The lightweight, long lengths of copper tube make it possible to complete much of the roughing-in work ahead of other construction—as in this school building addition. Note preassembled unit high on wall.

**Easy to cut.** The standard 20′ lengths eliminate many joints in long runs. For shorter lengths, tubes are cut easily, accurately by hack saw or tube cutter.

# Only copper gives you all these advantages

**All-copper plumbing gives great freedom of design.** Locate bathrooms and utilities where they belong without complicated, expensive construction to provide extra space for installation and maintenance.

**All-copper plumbing saves time.** Contractors report that installation time has been reduced one-third to one-half because it is so easy to install. This means better utilization of skilled manpower and faster completions.

**All-copper plumbing lasts.** It never rusts and it resists corrosion. The smooth inside surfaces of copper tubing and fittings minimize the possibility of clogging. Hide it in the wall—bury it in the ground—and forget it.

Anaconda Copper Tubes are available in all standard wall thicknesses—Type K, L, M and the new lighter weight Type DWV Copper Drainage Tube. Type K has the thickest wall and is used for underground lines. Type L is recognized as the standard weight for interior water supply and heating lines, and for sanitary drainage lines buried underground within the building. Types M and DWV are used for all above-ground lines of a building's sanitary drainage system.

Anaconda wrought and cast solder-joint fittings are available in a wide range of sizes and types.

Write for descriptive literature on ALL-COPPER plumbing. Address: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

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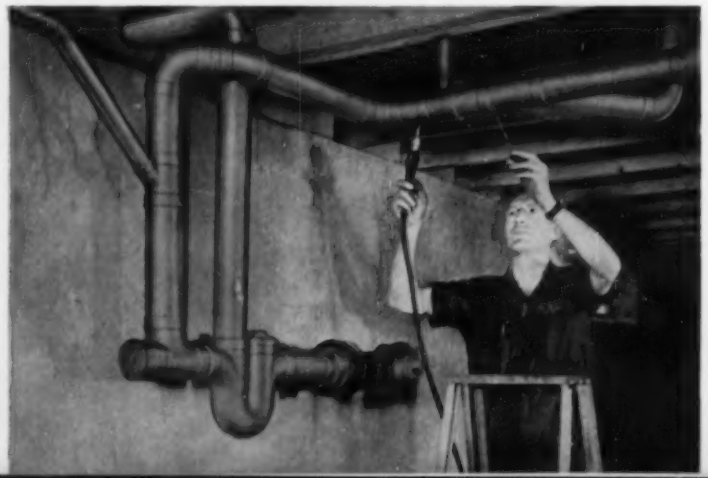
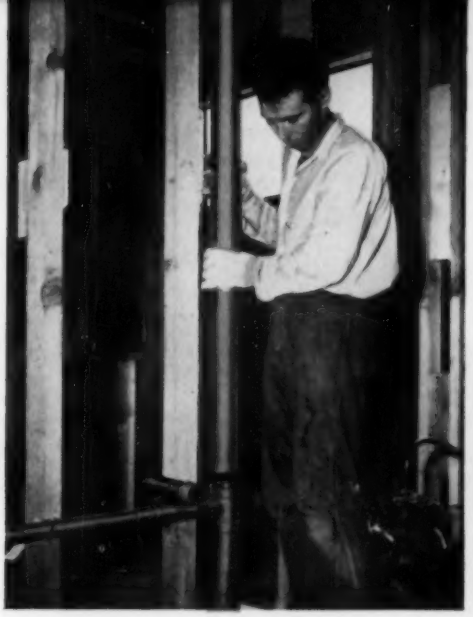
**COPPER TUBES AND FITTINGS**

*Available Through Plumbing Wholesalers*

**Easy to install in tight spots.** The light weight of copper tube and fittings—the ease of making solder joints—make installation simple and fast, even in cramped working areas.

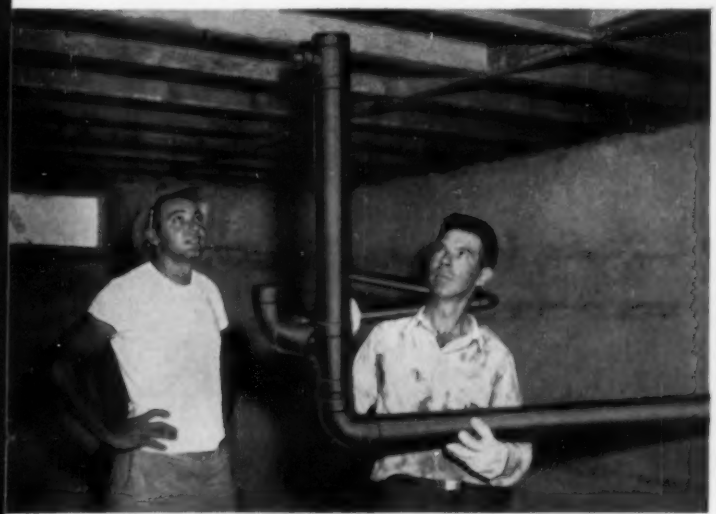
**Where plumbing shows, copper says quality.** Owners and buyers recognize copper as a sign of quality—of long life with low maintenance, and assurance of higher resale value for the property.





**Tube and fittings fit in standard partitions.** A 3" copper tube stack with fittings can be installed within a standard 4"-wide stud partition.

**Save space and weight in all buildings—even skyscrapers.** Copper tubes in main pipe shaft of a 43-story office building. Copper tube saves space because pipe shaft and furred spaces at columns and ceilings can be smaller. Light weight speeds installation.



**Lightweight for easy, fast handling.** This preassembled section comprising about 13 feet of copper tube and 5 solder-joint fittings weighs only 35 pounds, is easily handled by one man.

**Prefabrication speeds construction.** Sections like this can be preassembled out in the open or at the shop where men can work easier and faster—no lost time waiting for construction.

**Simplify remodeling jobs.** Lightweight copper tube and solder-joint fittings made light work of an otherwise back-breaking job, in adding two baths in this remodeled residence. Note how little ceiling height was lost.

**Trim, compact lines.** In this remodeling job, two stud spaces served as the chase for the copper tube risers. The large tube is the soil stack; smaller tubes are water supply and heating lines.

## THE RECORD REPORTS

## NEWS FROM CANADA

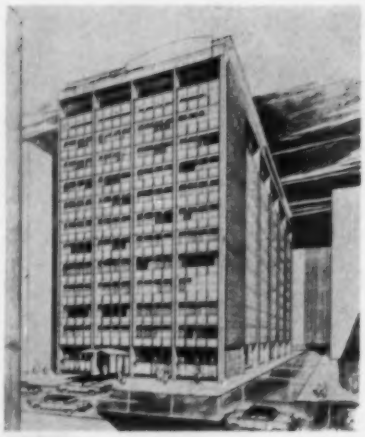
*(Continued from page 36)*

cient work to carry over well into 1957.

This year's increase in volume of construction, said the *Post*, will be only about half the figure estimated on intention at mid-year by the Department of Trade and Commerce. At that time, construction spending planned was 23 per cent above the 1955 figure, which, in turn, was a record year. Now, it is believed, the increase will be between 11 and 12 per cent — about the same as the 1955 increase, and well above the less than two per cent increase registered in 1954.

The pattern of construction, however, has changed this year. Though the year has shown more housing completions than ever before, new residential starts have dropped off in the last few months. This may be reflected in a 13.5 per cent drop in residential carryover into 1957 — still just a fraction above the 1954–55 carryover.

This year, the emphasis has been on engineering and industrial construction, expected to be substantially ahead of 1955.



*Offices for the Toronto Board of Trade, now under construction, will cost $2.2 million; Bregman & Hamann are the architects*

### NATIONAL COMMITTEE FORMED TO PROMOTE SLUM CLEARANCE

To combat the spread of slum areas, a national body, the Canadian Urban Renewal Board, has been formed. C. E. Campeau, director of planning for Montreal and vice president of the Community Planning Association of Canada, is the chairman.

The council will promote local efforts to stop deterioration, cut down the rate at which neighborhoods become slums, take measures to conserve areas which could deteriorate, rehabilitate rundown areas, and finally redevelop areas which are completely blighted. Work is expected to get under way early in 1957, and the council estimates that measurable results will appear within three years.

### LENDERS SEEK HIGHER RATE ON HOUSING ACT MORTGAGES

Architects who have project builders for clients are affected by the squeeze on residential loans being applied by life insurance companies. The latter want the interest rate on National Housing Act mortgages raised from the current 5½ per cent.

Lending under the Act during the first nine months of 1956 dropped more than $125 million below that of the same period in 1955. In terms of dwelling

*(Continued on page 44)*


*Wood Beauty*
ARCHITECTURAL HARDWARE

Get this latest bulletin—see the colored illustrations of our newest Wood Beauties.

These are custom built to complement distinguished architecture and appointments. Your choice of selected hardwoods or Stratawood and metals, make design combinations that are almost endless. Metal parts are available in Aluminum, Brass, Bronze and Stainless Steel.

Architects desiring to design their own will receive complete production cooperation from us.

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# colored aluminum spandrels

*insulated flat-type . . .*

## crafted by Overly

Rear View.
Architects: Sorber & Hoone, Greensburg, Pennsylvania

Prominent on the new wing of this Greensburg, Pennsylvania, High School are the permanently colored Alcoa architectural brown aluminum spandrels and the contrasting silver Alumilited finish mullions.

This installation merits attention because it is of a twice proved spandrel construction whose design characteristics permanently assure control of expansion and contraction, flatness of spandrel surfaces and watertightness. Modifications from a previous design involved the addition of Fiberglas insulation and steel sub-framing.

Design details and specifications for Overly's Flat-Type Spandrel System, insulated or uninsulated, are available on request. Write, outlining your design requirements today.

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OVERLY MANUFACTURING COMPANY
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# ITEM: ALUMINUM

## that raises and stores like a

***A dramatic example of the versatility of Kaiser Aluminum in meeting the weight-saving, space-saving, maintenance-saving design requirements of industrial architecture***

This rolling door demonstrates many of the advantages aluminum offers for industrial architecture.

For example, it weighs *only one-third as much* in aluminum as the same door made of steel. Yet, the Kaiser Aluminum used in its construction meets the most exacting strength and performance requirements.

Thanks to its light weight, the door may be easily operated manually. Or, when a power-operating mechanism is used, only a lightweight, economical unit is required.

### Bright . . . Attractive in Appearance

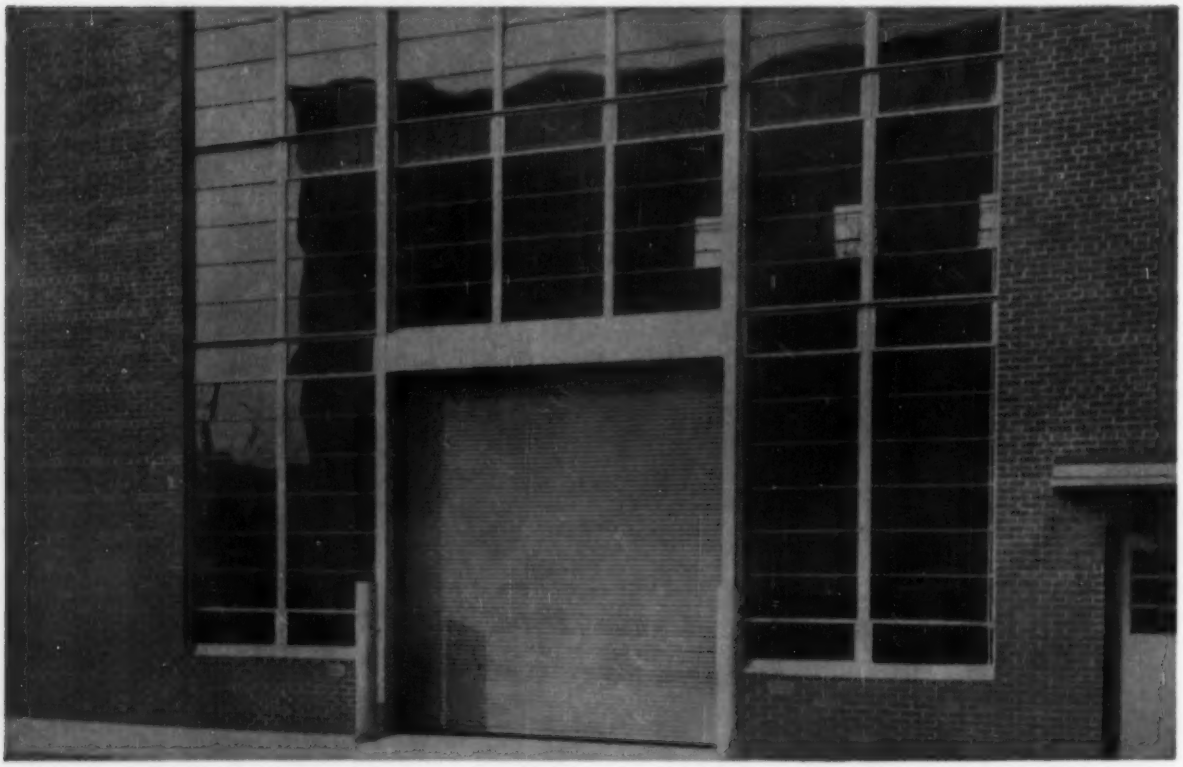
A second advantage aluminum offers for industrial architecture is its bright, natural look . . . a clean simplicity that conforms to modern design ideas. Whether concave or convex surface . . . box or flat-panel effect . . . virtually any styling gains appeal in aluminum.

Even in simple remodeling applications, a common door *in aluminum* goes a long way toward modernizing building appearance.

### Durable . . . Minimum Maintenance

Outstanding among aluminum's unique combination of useful properties is its resistance to corrosion. Because aluminum requires no painting or rust-proofing, maintenance is practically eliminated. It resists both weather-wear and the corrosive attack of severe industrial atmospheres.

**In this engineering-building "rolling door,"** interlocking aluminum slats coil like a window shade around barrel inside compact hood located above and behind doorway.



# DOOR

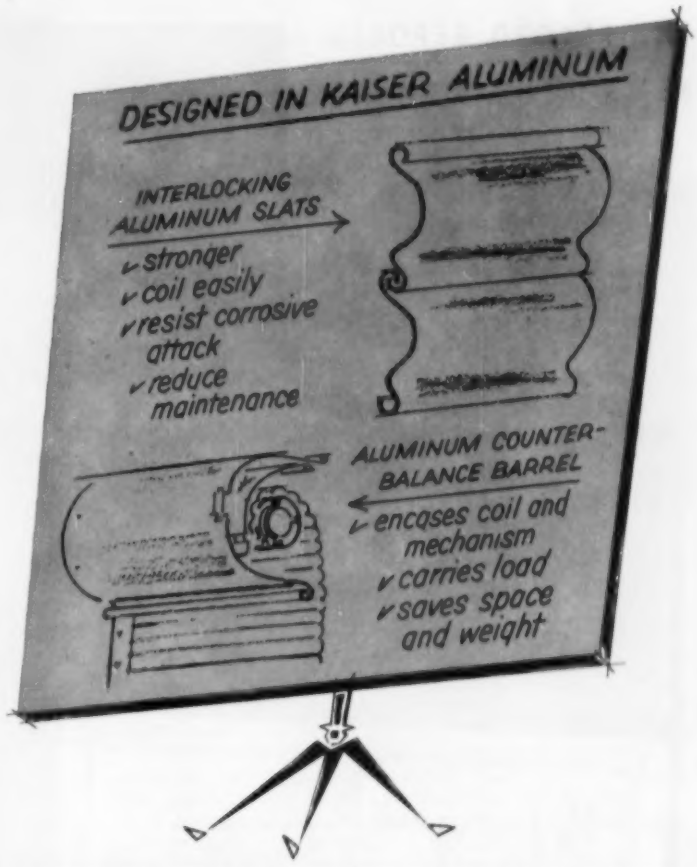
## window shade

In addition to this "rolling door," many other types of doors take advantage of aluminum's efficiency and economy. The four types shown below are recommended for specific applications.

Kaiser Aluminum architectural representatives are ready to give you immediate assistance and counsel in your selection of aluminum for any architectural use.

* * *

Contact the Kaiser Aluminum sales office listed in your telephone directory, or write Kaiser Aluminum & Chemical Sales, Inc., *General Sales Office,* Palmolive Bldg., Chicago 11, Ill.; *Executive Office,* Kaiser Bldg., Oakland 12, Calif.

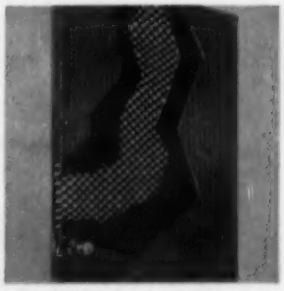



**THESE DOORS ARE TYPICAL OF MANY NOW BEING PRODUCED AND OFFERED BY MANUFACTURERS USING KAISER ALUMINUM**

**Sliding Doors** of aluminum tubes and aluminum sheets roll sideways into compact pockets to allow maximum unrestricted indoor-outdoor space use.

**Entrance Doors** of aluminum assure lasting strength and beauty . . . will never rust . . . cannot warp . . . require virtually no maintenance.

**Overhead Doors** of aluminum permit flush exterior design with strength and simplicity that assures trouble-free performance in all climates.



**Flush Doors** of embossed aluminum facings laminated to hardboard and honeycomb core are built on high-strength extruded aluminum frame.

**Kaiser Aluminum**

*See "THE KAISER ALUMINUM HOUR," Alternate Tuesdays, NBC Network. Consult your local TV listing.*

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☐ Please send names of suppliers of aluminum doors. I understand there is no obligation for this information.

☐ Please have your Architectural Representative call.

NAME_____

ORGANIZATION_____

ADDRESS_____

CITY & STATE_____

## THE RECORD REPORTS

## NEWS FROM CANADA

*(Continued from page 40)*

units, the decrease was 28 per cent.

Largely because of the availability of conventional mortgages, which bear a higher interest rate than is permitted under NHA, total house production in Canada continues at a high level. In municipalities of 5000 population and over, Central Mortgage & Housing Corporation reports that dwellings started for the nine-month period totaled 70,830, a decrease of only 4.9 per cent, while housing completions were up 4.1 per cent. Units under construction at the end of September totaled 57,725, a decrease of 6.9 per cent.

*Southhill Village supplies needed rental accomodation in Don Mills, the planned community now nearing completion near Toronto. Henry Fleiss and James A. Murray of Toronto are the architects*

### PARKIN CLAIMS NO LACK OF LEADERS FOR ARTS COUNCIL

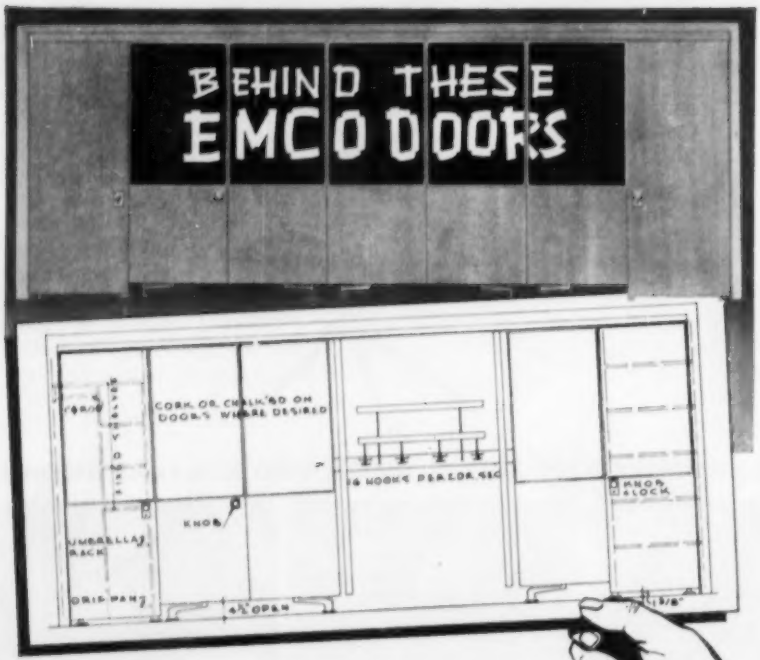
Continuing pressure for the formation of a state-supported Canada Council of the Arts, architect John C. Parkin, president of the Canadian Arts Council, denied a statement by Prime Minister St. Laurent that delay in acting upon the 1951 recommendation was due to lack of leadership material. Said Mr. Parkin: "Men have been found of outstanding caliber to act as trustees of the National Gallery of Canada, the National Film Board and other government bodies, who, at the expense of personal time, give generously for the benefit of the country as a whole. They can be found just as readily for a Canada Council.

"Legislation for a Canada Council" he added, "would rank as one of the boldest and most imaginative acts of any government."

### NEWS NOTES

**A $2000 fellowship** has been established by the Canadian Construction Association for postgraduate studies at Canadian universities; the C.C.A. hopes to encourage the expansion of construction courses. . . . **New and revised specifications** issued by the Canadian Government Specifications Board dur-

*(Continued on page 46)*


**This Classroom Wardrobe Plan Saves Space...Promotes Orderliness and Protects Children . . .**

. . . Modern day garment storage areas can not only complement the classroom, but they should be a *working part of it* for teacher and children alike.

The above EMCO plan tells a lot in this respect . . . but it cannot demonstrate the greatest EMCO refinements of safety and ease of operation. These are to be found in the exclusive patented EMCO hardware which eliminates dangerous overhead contrivances . . . prohibits injury to hands when opening doors . . . and allows the smallest child to open the multiple operated doors easily.

You cannot go wrong in specifying and insisting on EMCO—the design is right—the construction quality unmatched. Write today for brochure.

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**used in this distinguished modern church helps provide these important benefits:** (a) light and airy appearing church due to use of large glass areas, without penalties of cold drafts or excessive solar heat; (b) people attending weddings, funerals and other services leave church without feeling and looking wilted in hot weather, no drooping altar candles; (c) closed windows reduce cleaning bills and outdoor noises; (d) increased attendance due to greater year 'round comfort.

For more than 60 years Powers Control Systems have been providing thermal comfort in various types of buildings. Experience gained here and in many other prominent buildings should be helpful to you in selecting the most efficient control for your building.

For further information contact your nearest Powers office or write us direct.

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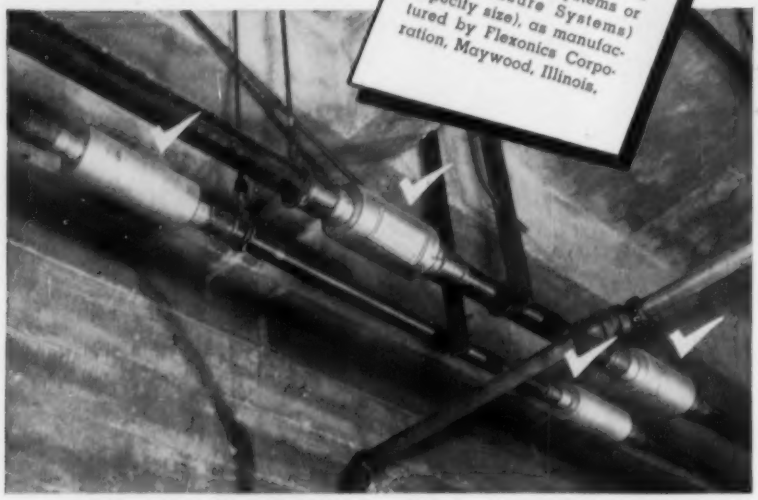
*Over 60 Years of Temperature and Humidity Control*

*This specification*

The contractor shall furnish and install as shown on plans, and in accordance with instructions furnished by the manufacturer, the (Model H or Model L) Flexon Expansion Compensator for (High Pressure Systems or Low Pressure Systems) (Specify size), as manufactured by Flexonics Corporation, Maywood, Illinois.



**. . . assures freedom from expansion problems and related troubles in heating system piping**

For Medium and High Pressure Piping—

**FLEXON® EXPANSION JOINTS**

**FREE FLEXING TYPE**—Available in sizes from 3" through 48", I.D. For pressures to 50 psi and temperatures to 850° F.

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**DESIGN GUIDE**—The Flexon Expansion Joint Design Guide is a 24 page handbook on the selection and application of expansion joints. Write for your free copy, today.

When you make this specification you know you are preventing problems from heating system piping expansion.

Flexonics Corporation provides the complete package to solve these problems—a low pressure unit for horizontal steam and water lines . . . a high pressure type for steam and hot water risers and horizontal runs.

Ideally suited for all types of buildings, the Flexon® Expansion Compensators eliminate the noise of pipe creeping and assure long leakproof service. The units have been especially designed to replace outmoded, troublesome methods of pipe line expansion control. They are space savers and easily installed, becoming an integral part of the pipe line. No access panels are required because there is no maintenance—for the life of the heating system.

Bulletin 151, a detailed guide to specification of heating system expansion control is available upon request. No obligation, of course.

**See Sweets' Architectural File—Section 27a/Fl**

EC-15

FLEXON® QUALITY proved in service and backed by over 54 years manufacturing experience

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FORMERLY CHICAGO METAL HOSE CORPORATION

Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.

In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario


## THE RECORD REPORTS

## NEWS FROM CANADA

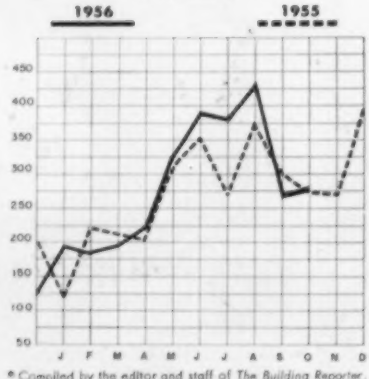
*(Continued from page 44)*

ing the past year are listed in the third quarterly Cumulative Supplement to the Index of Specifications, available on request from the National Research Council, Ottawa. . . . **The Vienna Grand Prix** was awarded to Blanche Lemco, a member of the Province of Quebec Association of Architects, for her film "It Can Be Done," shown this summer at the International Federation of Housing and Town Planning Congress in Vienna. . . . **New officers** of the Edmonton chapter of the Alberta Association of Architects are Bernard Wood, chairman; D. McCulloch, secretary-treasurer; and R. F. Bouéy, H. A. Dunn and W. P. Pasternak, members-at-large. . . . **An exhibition of church architecture,** shown earlier at Toronto's Victoria College, is displayed now at the headquarters building of the Ontario Association of Architects; it was arranged by the Church Architecture Society. . . . **A new partnership,** composed of Alan W. Gray, M. A. Stilwell and William Lobban, will be known as Alan Gray, Stilwell & Lobban; offices are at 326 Howe St., Vancouver. . . . **The first architectural office** in Vernon, B. C., has been opened by A. Keith Allen, former head of the design section for Annacis Industrial Estate. . . . **New chief architect** for Canadian National Railways is Harold C. Greensides, who replaces retiring George F. Drummond; G. F. Lithgow will be assistant chief architect. . . . **New addresses:** Lipson & Deskin, 6 Crescent Rd., Toronto 5, Ont.; Servos & Cauley, 619 Bayview Ave., Toronto.

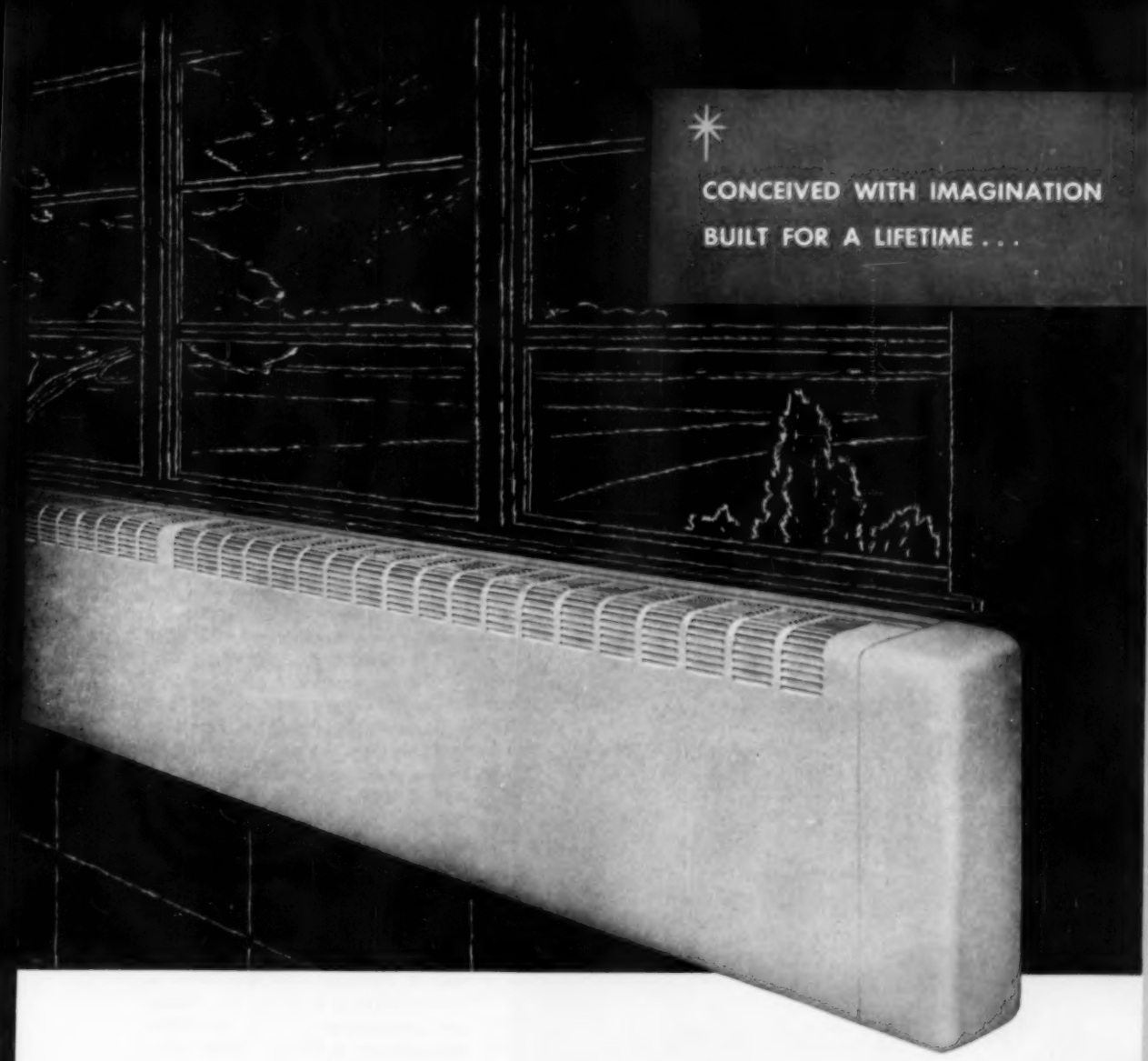
*(More news on page 48)*

**Contracts Awarded: Comparative Figures ***

(in $ million)




* Compiled by the editor and staff of *The Building Reporter* from information collected by MacLean Building Reports



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*Send for Publication 102*

BACKBONE CONSTRUCTION

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JOHN J. NESBITT, INC.
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### FEDERAL AGENCIES ASKING TO SPEND MORE IN 1957

Military construction expenditures and several of the government-assisted building programs can be expected to increase during the next fiscal year — that starting July 1. The Budget Bureau said recently it has been getting requests for more outlays from various government departments and agencies and is attempting to balance these "conflicting demands" on the tax dollar.

Commerce is asking for more Federal funds for ship and airport construction. Health, Education, and Welfare demands more funds for health institutes, for research and treatment. More hospitals always are needed, a Bureau spokesman noted.

"With our increasing population we have a serious shortage of schools . . . and the Federal government is being urged to step in here with grants and other incentives to help the towns and cities make up the deficit," said Percival F. Brundage, director of the Bureau. "We have received many requests for new flood control projects and for water conservation, and for better park facilities, but they must compete with defense needs for the tax dollar."

The military expenditures are the big thing. Director Brundage pointed out that military construction outlays of approximately $2 billion this fiscal year will provide for further expansion of facilities for continental defense, aircraft warning systems, and guided missiles. They also are covering conversion of existing airbases or construction at new bases to accommodate B-25 bombers in the dispersal program. Construction in fiscal 1957 proceeds at more than 600 locations throughout the world, two thirds of them involving expenditures of over $1 million each.

"We are constructing an extensive continental defense system to meet new methods of attack," said Mr. Brundage. "But here, too, we must exercise judgment and restraint so as not to develop a Maginot Line complex. We have built, enlarged, and modernized bases all over the world."

More attention is being given to the reserves where a heavy armory construction program is in progress. In fiscal 1957 total reserve expenditures are estimated to be around $200 million higher than in 1956 and more than twice the amount spent in 1953. Military research and development is seeing the highest expenditures in history. These reflect emphasis on guided missiles and aircraft developments. More than $5 billion will be spent on all phases of research, including procurement of various test weapons for the development program.

Atomic energy expenditures are estimated to be rising to more than $300 million, bringing the total to about $2 billion for the current fiscal period. Much of this money is going into reactor developments for peacetime uses.

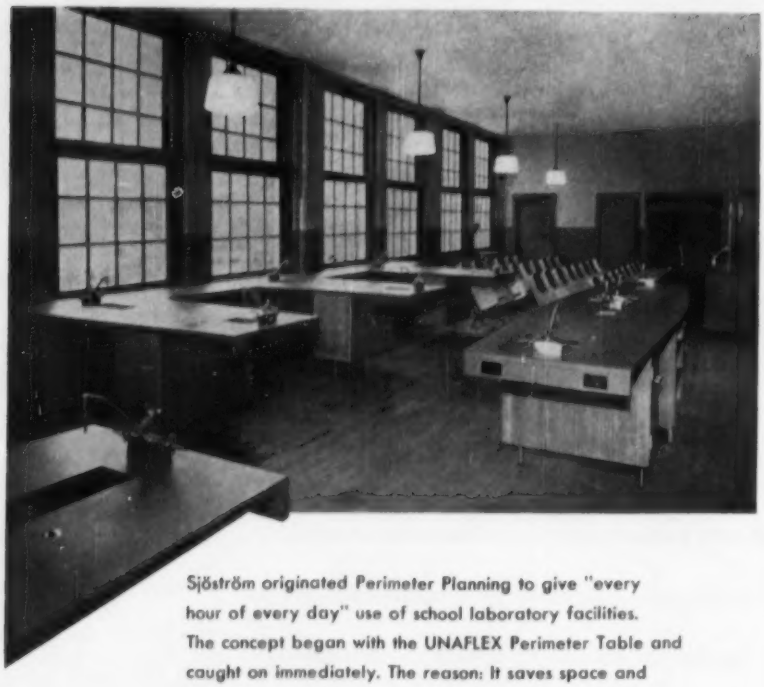
### BLS ISSUES FIRST REPORT ON HOUSING STUDY FOR PC

Of the 218,000 one-family houses started in this country in the first quarter of 1956, only 7800, or four per cent, sold for less than $7000 each. The largest percentage, 28, sold for between $15,000 and $20,000. There were 61,900 of the single-family units in this classification.

These figures are contained in what is claimed to be the most comprehensive

*(Continued on page 284)*

*Maximum-use School Laboratories,*
**PERIMETER-PLANNED WITH UNAFLEX**



Sjöström originated Perimeter Planning to give "every hour of every day" use of school laboratory facilities. The concept began with the UNAFLEX Perimeter Table and caught on immediately. The reason: It saves space and money . . . is easily adapted to new or existing facilities . . . is extremely efficient . . . inspires students and teachers.

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*Western Editor:*
**ELISABETH KENDALL THOMPSON** **2877 Shasta Rd., Berkeley 8, Calif.**

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## IMITATION: NOT SINCERE, NOT FLATTERING

***What Do You Think?***

***Comments and discussion of this subject are welcome on this page. Write to the Editor, Western Section, 2877 Shasta Road, Berkeley 8, Calif.***

AT ONE OF THIS FALL'S many conventions the keynote speaker* named two dangers that the architect faces in trying to perform his function as artist. These are the hard-headed, "practical" man and the imitative man.

The first is too "practical" to accept an element in a building design which is proposed as an esthetic consideration; the second is too timid to permit today's architecture to be other than the pale and lifeless shadow of an earlier day's solutions and concepts. In both instances the speaker had in mind these types of people as clients.

But an architect, too, can be a "practical" man, and often is; and the buildings that grow from the designs made in his office provide shelter but are not, in the end, architecture. The "practical" architect is a danger to architecture just as much as the "practical" client is.

More dangerous than either of these, however, is the imitative architect, the architect who uses, without assimilating, the ideas and solutions of another architect — or of many other architects, for eclecticism knows no special period. Not only does the imitative architect perpetrate poor copies of other details or even of entire building concepts, but in doing so he often leads the layman, his client, and his client's friends, and many who may become his clients, into thinking that the copy is valid for its own sake. In their lack of knowledge of architecture, they have a right to assume that the man who bears the title "architect" speaks through his buildings with authority on his own subject, architecture.

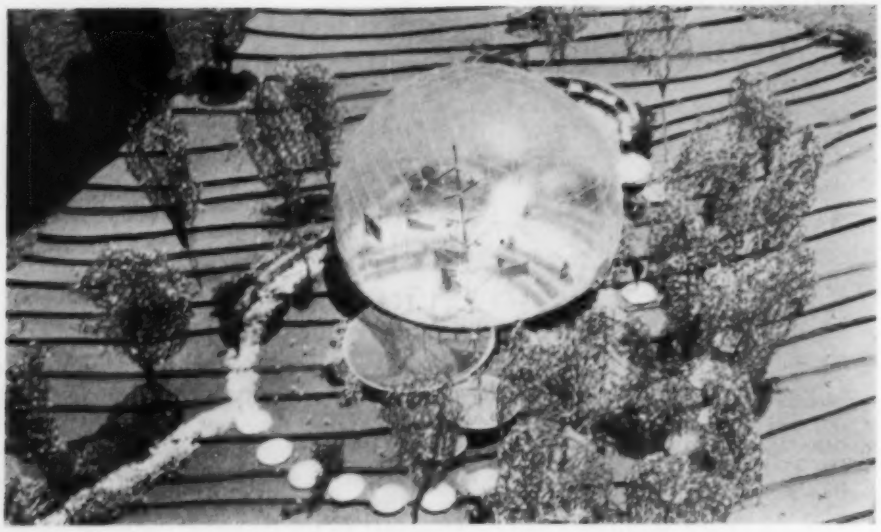
How is the architect to guard against the danger of imitativeness? Not every one is a genius; not every one is original in his creative efforts. It is unfair to blame a man who is not inherently a genius for not being one. But he can develop what another speaker** at another convention called "a period of forgetfulness" in which all that he has studied and seen and admired has a chance to filter through him and so absorb something of himself before anything is manifested as architectural expression. The resulting building has a chance by this process of being the product of this reflection and not the imitation of a building which came from another man's reflective process.

Shakespeare's plays are indisputably his, but he drew inspiration for them not only from history itself but from the work of other playwrights, notably the Roman authors Plautus and Terence. But though the source is plain, the result with Shakespeare is his own. It is no disparagement to Shakespeare that he used other than his own mind as the source of inspiration for these plays; it is, rather, a tribute to his mind that what he drew from these sources was transmuted in him to produce what has delighted men for 400 years and more.

This process of transmutation needs a chance in architecture as well as in writing. The period of "productive silence" is as valid in the design process as in the writing process. Both are creative; both require inspiration. But inspiration is one thing; imitation is quite another. The two are not compatible. Architecture needs inspiration. It can very well do without the other.

*— E. K. T.*

** Dr. Stephen Pepper, at California Council of Architects convention.*
*** John Knox Shear, at Western Mountain Region, A.I.A., convention.*



# CAMPUS CHAPEL IS INTER-

*California Polytechnic College*
*San Luis Obispo, California*

FOR THE FIRST TIME since he first announced his design for a geodesic structure, one of Buckminster Fuller's domes will be dedicated as a religious building. After a brief visit last spring to the department of architectural engineering at CalPoly, Fuller gave permission to the department's students to use the patented system for a chapel to be built on the campus. The project, now under way, and in line with CalPoly's policy of "Learning by Doing," is being used to the fullest extent as an instructional device not only for architectural students but for students in other departments as well.

The chapel project has become a unifying experience for all CalPoly students and an opportunity for non-architectural students to develop an understanding of architecture and for architectural students to broaden their knowledge in a number of other fields. This extension into other departments includes journalism, English and social science students in addition to those in more obviously related fields such as mechanical and electrical

*Fuller dome set on wooded hill above campus and city will become CalPoly's first chapel. Students worked out design for structure, lighting, cooling and landscaping. Reflecting pools, rocks and plants inside dome will be part of program to make chapel "close to nature, close to God"*

# DEPARTMENT PROJECT

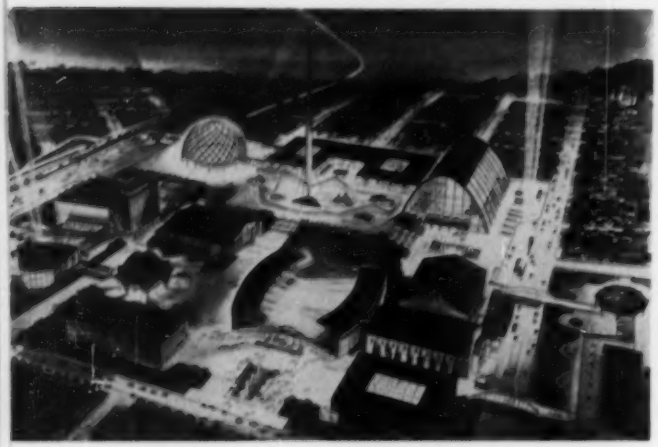
engineering, landscaping, air conditioning, etc.

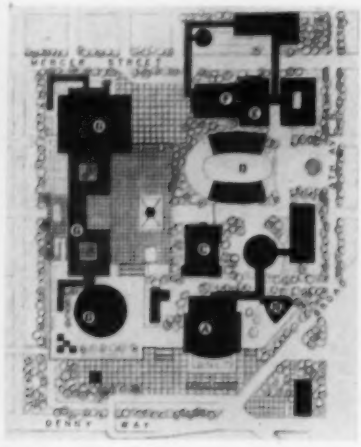
Social science students, for instance, are studying the religious and economic factors in such a project; journalism students are handling publicity on it for local and other papers; English students are writing reports on various phases of the design, construction and coordination of the project.

Mechanical engineering students, on the other hand, are doing the jig design, welding and metal machining for the dome's framework (for which one mile of war surplus steam tubing, already on the campus, is being used); electrical engineering students are designing a plastic fusing element, and are charged with working out details for lighting the chapel from outside; air conditioning students are working out, as part of their regular course work, a method of keeping the chapel cool; aeronautical engineering students are studying the attachment of plastics to metal and making a strength analysis of plastics. Architectural engineering students are responsible for design and structural theory, and will participate in actual construction of the project. Landscape architecture students will plan for use of plants and rocks inside the chapel and reflecting pools around it. Licensed architect members of the department of architectural engineering will supervise both design and construction.

The chapel will be situated on a heavily wooded site overlooking the campus and the city of San Luis Obispo and will be used for weddings, baptisms and inter-denominational services.

The structure is 55 ft in diameter and will seat 200. Estimated cost — because of student participation from design through construction — is approximately $2000, most of it collected by and from students. William Roth is the coordinator for the committee on the chapel project whose members include John Sampieri, Sam Peterson, Jim McGinley, Eugene Perry, Ron Folsom, and Don Taklage. George Hasslein is head of the architectural engineering department which originated the idea for the project and for the program of inter-departmental participation.





*Proposal for a civic center for Seattle incorporates existing buildings, suggests types and locations of new units. Bond issue provides funds for A (concert-convention hall) and B (multi-purpose auditorium); C (armory), D (stadium), E (ice arena) and F (civic auditorium) are existing buildings. Later, fair buildings (exhibition and convention halls) would be at G.*

## *The Voice of the Ballot Box*

**SEATTLE**

***Civic Center Assured by Heavy Vote***

The civic center that Seattle has talked and dreamed of got its first impetus toward reality when a $7,500,000 bond issue was passed by a wide margin at the November election. Since the city already owns part of the property which ultimately will comprise the center, the bond issue includes $2,500,000 for acquisition of the additional lots needed to bring the site up to the proposed 28-acre size.

A civic center for the city was one of the prime objectives of Allied Arts of Seattle, an organization of some 75 groups in the arts and crafts which was formed two years ago as a result of action by the Washington State Chapter, A.I.A. In the recent campaign, the chapter supported the civic center bond issue not only by its endorsement of the bonds but by providing preliminary proposals in sketch form (worked out by a committee of 16 members).

A 3000-seat convention hall, to cost an estimated $4,000,000, and an 800-seat multipurpose auditorium will be the first units to be built with funds from the bond issue. Improvements to the existing civic auditorium will also be made as part of this initial stage in construction of the center. Later, other buildings such as a sports coliseum and convention hall, an international trade fair center, and a planetarium are contemplated for the center.

Forty-four years ago the Washington State chapter supported a proposal for a civic center for Seattle, and sketches offered by the chapter were published in Architectural Record for 1912. Nothing came of that proposal. This time, however, it looks like Seattle will get its civic center.

**CALIFORNIA**

***Proposition 10***

Architects all over the country watched with interest the outcome of the battle for Proposition 10 in California because, although the legislation would affect only California-registered architects, the same sort of problems which it attempted to clear up might be encountered anywhere.

In spite of the fact that a campaign fund of over $90,000 — $40,000 of it from California architects, $10,000 from out-of-state architects, the rest from engineers and other members of the construction industry — had been contributed in the hope of waging a successful battle, the proposition was smashingly defeated on November 6.

Opposition to it developed early this year, particularly from the California State Employes Association, an organization of some 60,000 members, and was largely based on the mistaken notion that Proposition 10 was a threat to civil service in California.

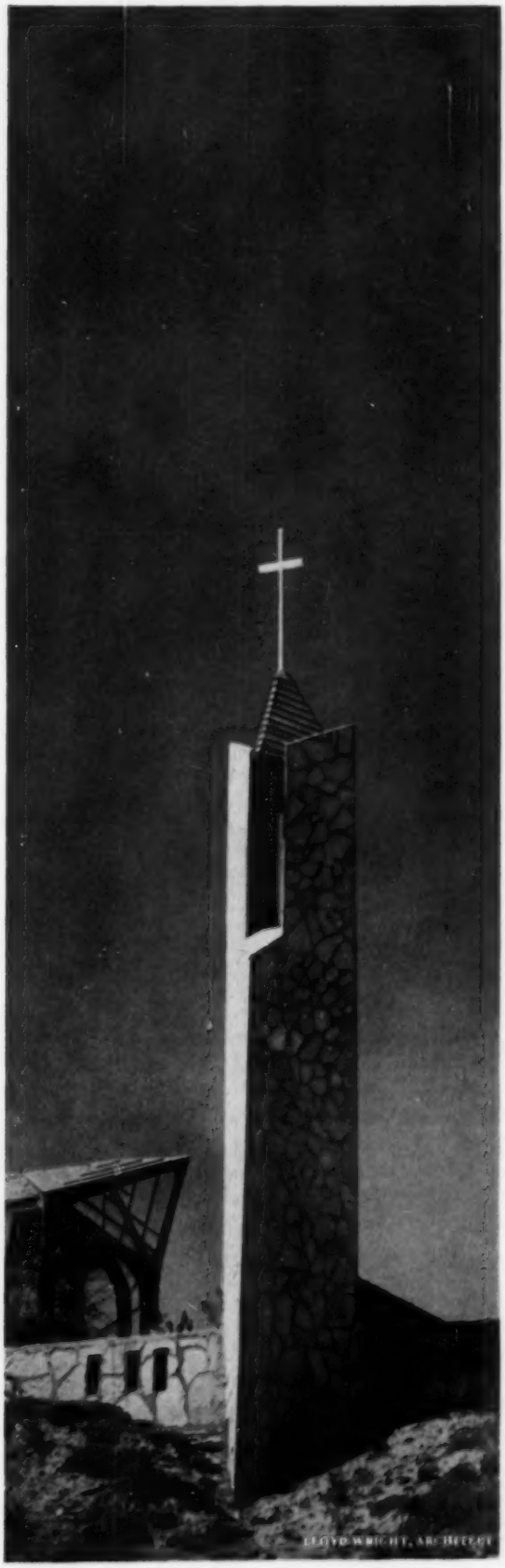
Actually, Proposition 10 was a clarifying act which would have enabled State agencies to engage private architects and engineers to do state work when existing personnel in the state agencies was insufficient to get the work done expeditiously. Legislation already in effect had been interpreted by the California Supreme Court as indicating that state contracts with private architects and engineers were invalid unless the architect or engineer gave up his private practice and entered civil service.

By the week before the election, statements and misstatements were flying fast. After one particularly thick barrage of "deliberate distortions and outright falsehoods," John Lyon Reid, president of the California Council of Architects, called on Governor Goodwin Knight to "correct statements that 47 per cent of state building design work has been done by contract architects in the last five years, that architects receive fees of 10.85 per cent for state work, and that approval of Proposition 10 would remove controls presently exercised by the State Personnel Board." These and other "distortions of facts," he said, had been "repeated by newspapers and by many people who, because of the absence of any denial, have accepted them as fact."

Editorial comment in the northern part of the state was generally against Proposition 10, but in the south the amendment did gain some support from newspapers. Opponents of the measure did not, however, rely on editorial comment alone to put over their cause. Newspaper advertisements appeared in the last two weeks of the campaign which showed a hefty, cigar-smoking, diamond-bedecked, leering man in striped trousers and cutaway, with a sheepskin over his back. The caption read:

"Harmless and innocent enough, but beneath its cloak of innocence lurks the selfish attempt by *Special Interests to make huge profits* by dominating the planning and designing of all State buildings, highways and water projects. The issue is not *whether* architects and engineers should be employed by the State on a contract basis, but *how* they

*(Continued on page 48-20)*

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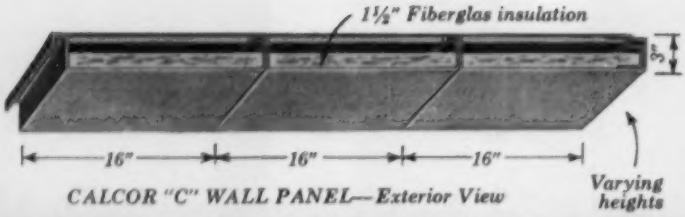
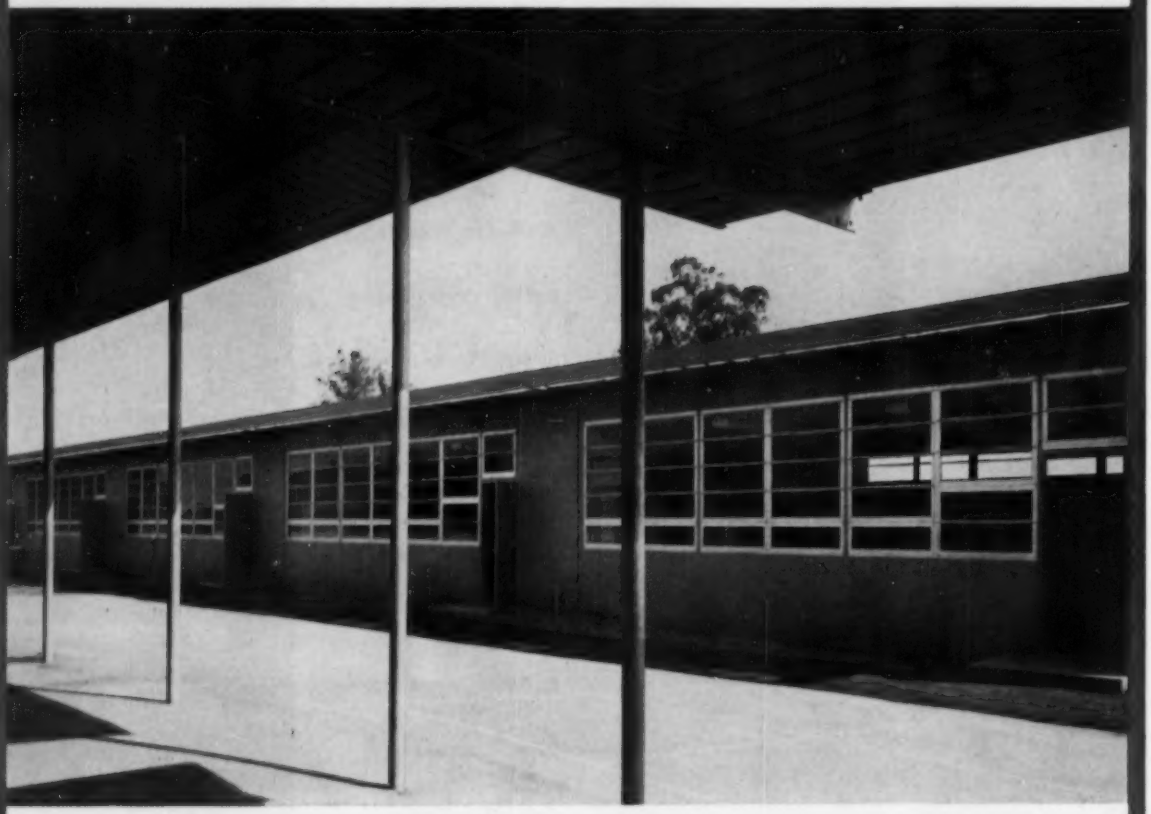



CALCOR "C" WALL PANEL—Exterior View

*The Calcor classroom is shop fabricated in these modular steel panels. A unique interlocking mechanism makes the building simple to disassemble and relocate. The panel is formed from 20-gauge United States Steel Sheet. The inside and outside surfaces are separated 3 inches with steel stiffeners running vertically on 16-inch centers. No exposed fasteners inside.*



# Steel prefabs reduce schoolroom costs one-third

Calcor Corporation, Los Angeles, has developed a revolutionary new modular prefab classroom. The mass produced unit can be erected in a week for a price 30% less than conventional wood-frame schoolrooms.

The use of steel for framing, walls and roof decking gives the building an earthquake-safe rigidity. The entire structure is incombustible. Fiberglas is used in both roof and walls to obtain insulation quality equal to more than a foot of masonry. The Calcor modular-prefab system has sufficient design flexibility to accommodate the desired classroom features of architects and school districts. Full scale tests of the buildings have gained the approval of the California State Division of Architecture as well as the Department of Building and Safety, City of Los Angeles.

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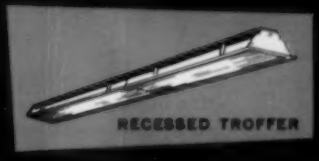

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# CONVENTIONS:
## ARCHITECTS, ENGINEERS, LANDSCAPE ARCHITECTS

***This Year's Programs Reflect a Broadened Scope of Professional Responsibility***

THE MONTH OF OCTOBER — a favorite for conventions in the West — found architects of two regional districts, engineers from five states, landscape architects and building contractors from California holding their annual conventions all the way from the shores of the Pacific Ocean up to the Sierra Nevada and down to the valley of the Great Salt Lake. In all, some 2500 persons — members of the convening organizations, their wives, speakers and guests — were attracted to these meetings by the location in which they were held, by the excellence of the program or by the bonds of fellowship, known or anticipated. Largest of these conventions was that of the Building Contractors Association of California at Coronado, Calif., which drew a registration of over 800.

### *California Council of Architects*

Almost as large was the California Council of Architects' annual convention which also included the California-Hawaii-Nevada regional council meeting. Some 200 architects and 600 others, including wives and guests, Producers' Council members and exhibitors, gathered in Yosemite National Park for a four-day meeting whose overall theme was "Planning for a Decade of Growth." Keynote speaker was Dr. Stephen C. Pepper, chairman, University of California department of philosophy. Reinforcing the theme was a series of seminars dealing with the socially — and numerically — important building types, led by speakers of eminence in each special field: Archibald Shaw, Scarsdale, N. Y., superintendent of schools; Joseph Eichler, home builder and land developer; and Gordon Cumming, chief, Bureau of Hospitals, California Department of Public Health. A fourth seminar, on public relations, was led by Dr. Dwight Bentel, dean, San Jose (Calif.) State College department of journalism.

Speaking of "The Architect as Artist," Dr. Pepper said that if we are "to maintain and enhance the beauty of our natural environment, we shall have to keep constantly in mind that the buildings and the cities to be built are not mere constructions of sticks and stones, but are organizations of human perceptions and meanings. These organizations must be rich and satisfying. A beautiful building is like a person and has a character. A person's character is preserved in the physical body. But the physical body is not the person. In building our coming California environment, we must all keep in mind the ultimate goal that our buildings and our cities have character.

"But to achieve this, we must guard against some menaces — that of the hard-headed man and that of the imitative man. Because most men of power and wealth in our society turn out to be one or the other of these two menaces, or to have menacing tendencies in these directions, these are serious problems.

"The hard-headed man is the excessively practical man whose life has been devoted to money-making or to politics or to engineering or some other absorbing but narrow calling. Almost in proportion to his success in his calling is he a source of danger to the future comfort and beauty of our state. Propose anything on the grounds of its beauty or esthetic appeal and he is at once against it as a waste of money, a thing impractical and effeminate and possibly suspect of being un-American.

"The imitative man has considerable cultivation but he is esthetically timid and unhappy in a highly experimental and exuberant architectural era. He wants the architecture of the present and the future to resemble that of the past. In a static period, his influence would not be noticed and would on the whole be beneficial. But in a developmental period, he is a drag. This is the man whose taste has controlled the designs of many of our bank and office buildings, many state and federal buildings — including schools, universities and post offices.

A.I.A. executive secretary Edmund Purves with regional director Donald Beach Kirby at CCA convention

Paul R. Hunter, president, Southern California chapter, with George Hasslein, head, department of architectura engineering, California Polytechnic College

Past Council president Frank Mayo and Board of Architectural Examiners president C. J. Paderewski at Yosemite

"The architectural profession, on the other hand, must take note of the unusually great social responsibility it has for the future character of the cities and countryside of this State."

A panel discussion, moderated by architect Cornelius Deasy of Los Angeles, with seminar speakers and Dr. Pepper as participants, considered "Population Pressures and Architecture" and pointed up the peculiar factors to be dealt with in California's next 10 years of growth: the greatest population increase will be along the coast where the climate is good, and in a few inland areas; immigration from other states has accounted

*(Continued on page 48-12)*

# Porcelain ENAMEL*

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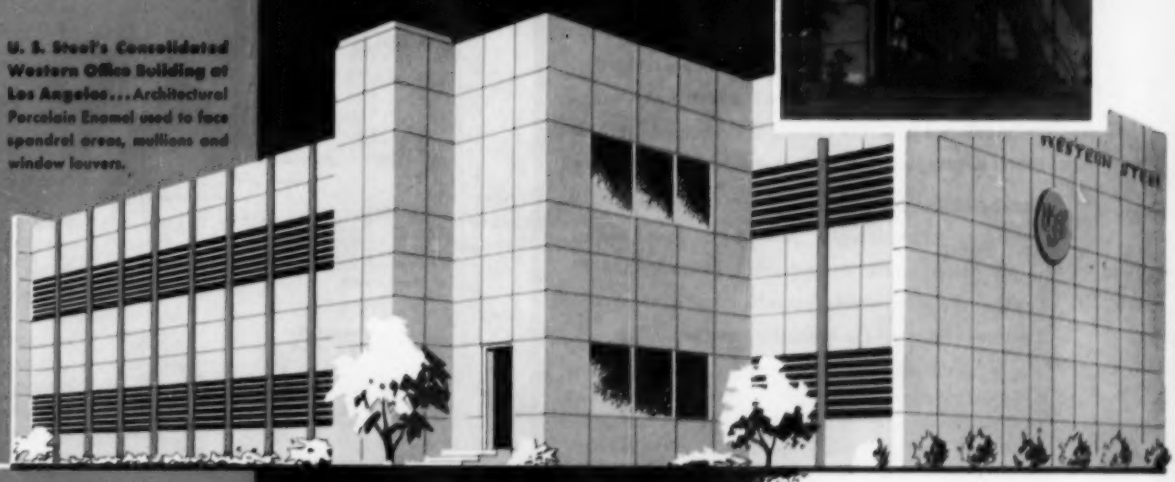


U. S. Steel's Consolidated Western Office Building at Los Angeles... Architectural Porcelain Enamel used to face spandrel areas, mullions and window louvers.

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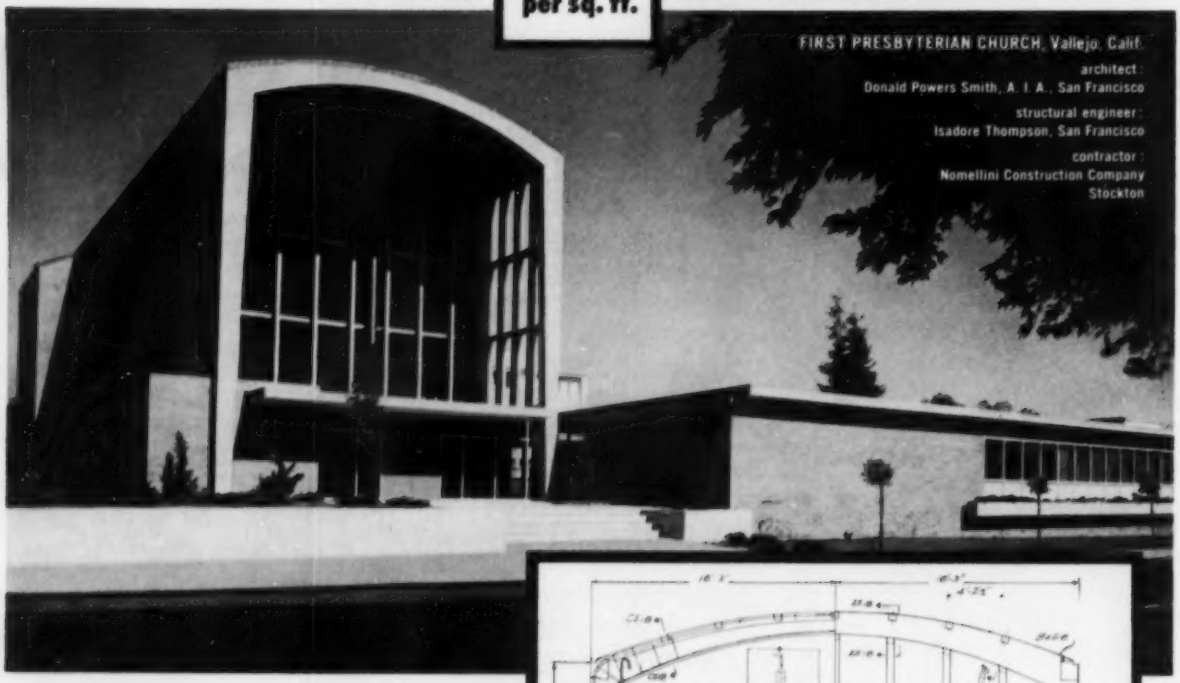

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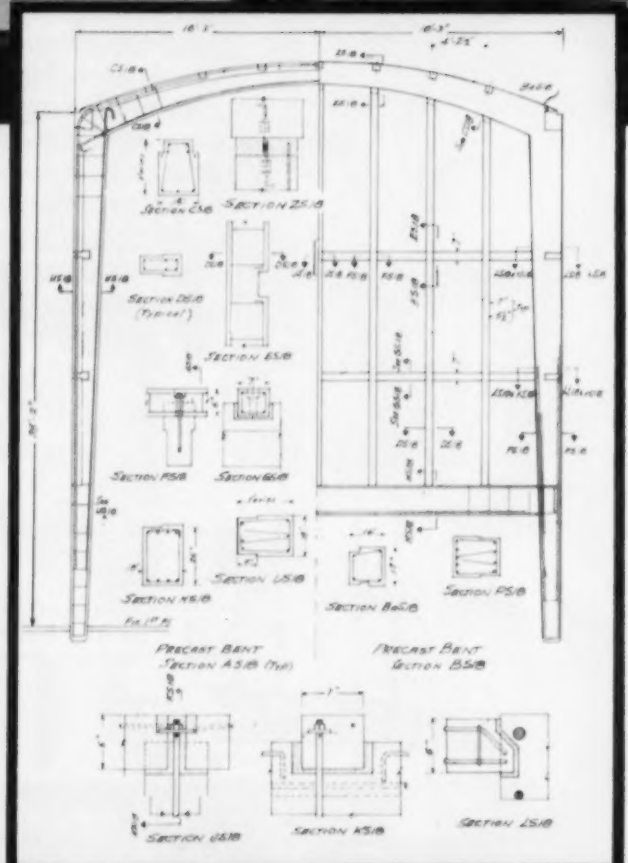


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3732

Menlo-Atherton High School, A. D. Janssen, A.I.A., architect.
Associate architects: W. H. Doseking, A.I.A., W. C. Keller, A.I.A.
Contractor: George Bianchi.

## SOULÉ STEEL COMPANY

San Francisco 1750 Army St., VAlencia 4-4141 • Los Angeles 6200 Wilmington Ave., LUdlow 5-0911
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Dallas 528 Interurban Bldg., Riverside 1-5225

**CONVENTIONS:**

*(Continued from page 48-8)*

for the growth up to now, but the birth rate in time will be the contributory factor and this will pose special problems; the importance of people themselves, rather than of the amorphous abstraction of "population" may be in danger of being overlooked in such a period of rapid growth.

*Panelists at Landscape Architects meeting were (seated) Victor Gruen, Garrett Eckbo, Ted Osmundson, (standing) Whitney Smith, Ben Southland and USC dean Arthur Gallion, moderator*

*Structural engineers of California elected new officers at Reno convention: Howard Schirmer, vice president; Henry Layne, president; Harold Manley, secretary-treasurer*

*Convention chairman J. S. Barrish with dean M. P. O'Brien, University of California, Walter Buehler, Central California chapter president, and C. N. Herd, state president*

*Prof. Willard Oberdick, Walter Dickey, Northern California chapter president, Allan Freas and Ben C. Gerwick, Jr.*

The Women's Architectural League, a statewide organization, was honored at lunch and dinner on one of the convention days as a celebration of its fifteenth anniversary. Others honored included Leon Chatelain, Jr., national A.I.A. president, and executive secretary Edmund Purves.

John Lyon Reid of San Francisco is president of the Council; Donald Beach Kirby, also of San Francisco, is regional director. In charge of the convention program were William Corlett, chairman, Donald Hardison and Walter Stromquist.

***Western Mountain Region Conference***

Architects and their wives and guests — nearly 300 of them, in all — from five states in the Western Mountain region (Arizona, Colorado, New Mexico, Utah and Wyoming) met in Salt Lake City for their fifth annual convention and took part in a program so full of interest that its sessions drew top attendance despite competition from tours of the city's attractions in the crisp fall weather.

"Resources — People — Architecture," the conference theme, was explored throughout the program: Edgardo Contini, structural engineer of Los Angeles, spoke on "Our Cities of Tomorrow"; Dr. Sterling McMurrin, dean, University of Utah's University College, on "People and Architecture"; John Knox Shear, editor in chief, ARCHITECTURAL RECORD, on "Regionalism in Architecture"; Philip Will, second vice president, A.I.A., on "Art and Architecture in the Design of the School Plant"; John Lyon Reid of San Francisco on "Public Controls for School Buildings"; Ernest O. Larsen, Regional Director, Bureau of Reclamation, on "Potential Resources of the Colorado River Development"; and George M. Gadsby, chairman of the board, Utah Power and Light Company, on "Atomic Energy and its Impact on the Intermountain Area."

***Notable Quotations***

*Contini:* We need an environment measured to men rather than to cars. . . . It is not true that order does not exist in the planning of our cities but what we have is an inheritance of Napoleonic planning which has shaped such cities as Washington and Detroit in a framework not adequate for today. . . . The thinking that goes into replanning of downtown areas must go into dealing with the pattern of growth for the city as a whole.

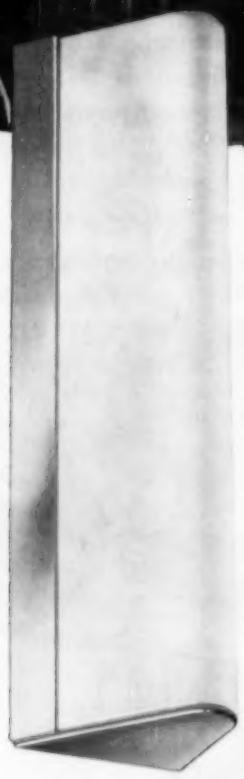
*McMurrin:* If we fail to reach for more than the practical requirements and become just the satisfiers of practical demands, we will run the risk of failing to create a distinctive art and a distinctive architecture. . . . To think creatively is to discern what is deepest and foremost in a culture and to express this concretely. . . . If the culture does not have a sense of the sublime it is one in which no great and lasting art can be produced.

*Shear:* If regionalism is provincialism, it is poison to the activation of good architecture. . . . But if it is a way by which the particular is allowed to play its part along with the general, then we have neglected the region as a powerful generating source. . . . Space, the force of climate, water, light, the genius of the place, these are legitimate sources of regional influence. . . . The architect should investigate and familiarize himself with *all* sources for the form he will develop, but then he must enter a period of architectural forgetfulness, of deep reflection, lest any one factor should move him too much. . . . It is our job as architects to resolve the tensions between the things which are specific and those which are universal, not meeting at a half-way point of compromise but at an apex on somewhat higher ground.

*Will:* We incarcerate two types of citizens by law: criminals and children. Sometimes it is hard to distinguish between the two types of buildings we provide for them. . . . The most important thing in schools is not the classroom. The neglected spaces in schools are the interstices that fit the working parts together. The difference between good and bad schools is in the treatment of these spaces through which people move. . . . There is such a thing as too even light in a school room. How can you sense form without shadow, vitality without highlight?

*Reid:* Education is more than a series of cell-like rooms connected with corridors where students expect to race back and forth as fast as possible for a certain number of Carnegie units, yet that basically is what state-aid invites architects and educators to use as a standard for design. This is what is stifling creative design, and making it extremely difficult for education to improve and to grow. . . . The architect must maintain his position with the educator to seek out and push toward new concepts of education which will be characterized by some magnificent achievements not possible under a system of rigid controls.

*(Continued on page 48-18)*



Here is versatile, shielded, single-lamp lighting for more applications than there's space to name with the Sunbeam P2801 Visionaire for corridors, library stacks, small parts bins, stairways, dressing rooms, over murals, paintings and commercial display areas or, as pictured, to form the general lighting system for smart contemporary interiors. Arrange patterns with the matching corner connector for uninterrupted geometric designs; follow contours or mount vertically on walls to provide local illumination. White plastic diffuser presents uniform surface brightness in all directions, snaps in or out with gentle "squeezing" motion. Low, low maintenance and tailored illumination distinction is assured whatever the application. Available in all standard lamp lengths.

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★ *Twenty designs to choose from*

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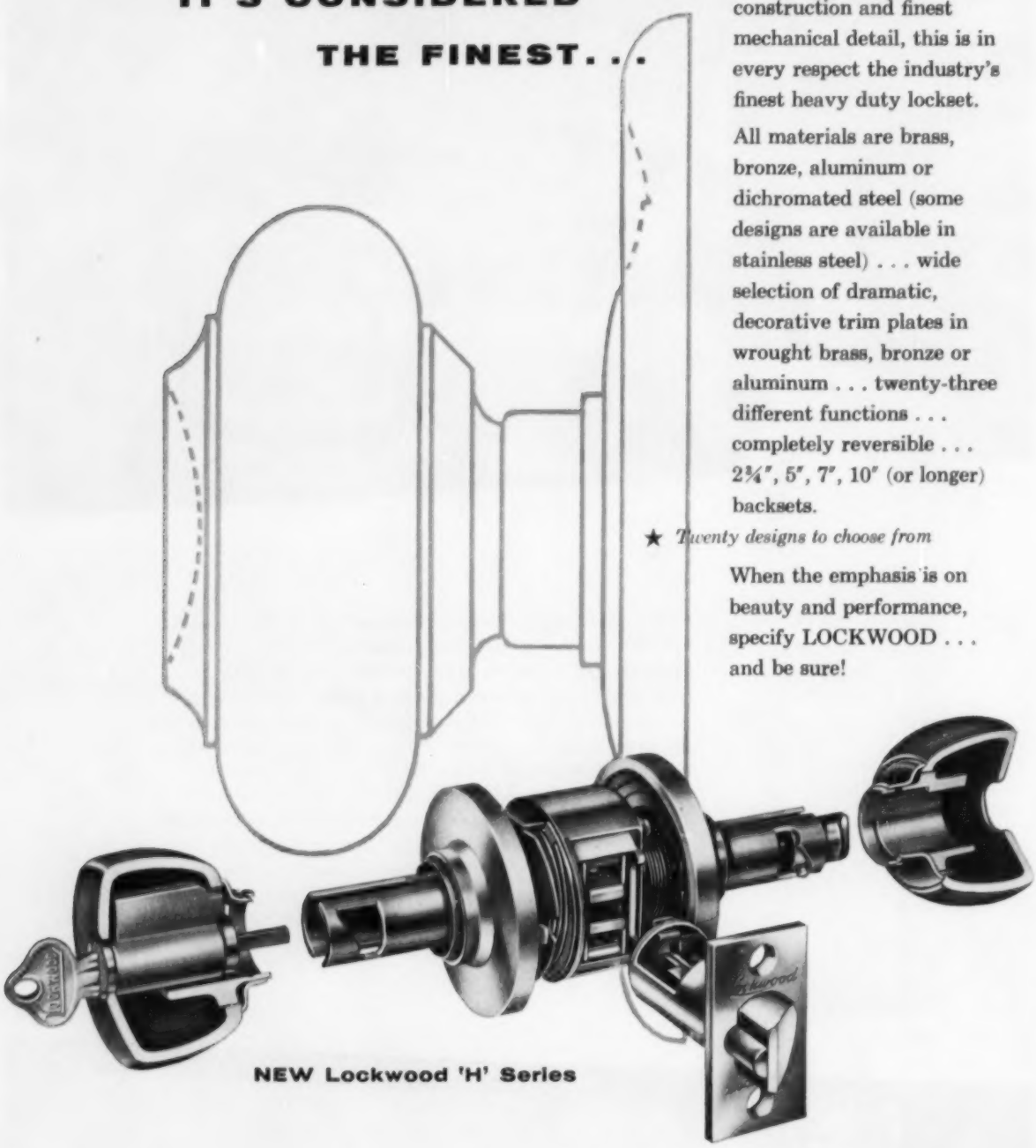

NEW Lockwood 'H' Series

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*"Babe, that there's what I call a SOUND FOUNDATION!"* observed Paul Bunyan as he delicately lifted up the old house with his pinkie. The Blue Ox grunted. "See them mudsills, girders an' posts? Been settin' there 25 years in the damp an' dark, supportin' 50,000 pounds o' house—an' not a trace o' rot or termites anywhere. Sound as the day they was cut...Babe, sure as you're true blue, that's BAXCO Pressure Treated Foundation Lumber*."

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## BAXCO *pressure treated* FOUNDATION LUMBER

* What else, Paul? For the past 25 years BAXCO pressure treated Foundation Lumber has been safeguarding thousands of Western homes against termites and wood-rot. Pressure treatment locks in the chemical protection for keeps...And when you figure, Paul, that just one repair bill, caused by rot or termites, can run into hundreds of dollars—well, why take a chance? Especially since BAXCO Pressure Treated Foundation Lumber usually adds less than one half of 1% to your total building cost ...Write today for free booklet.

J. H. BAXTER & CO. *120 Montgomery Street, San Francisco 4, California*

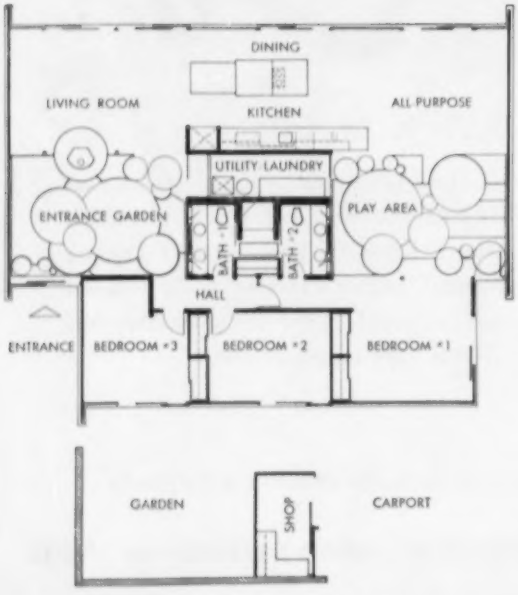
*News of another steel home from United States Steel*

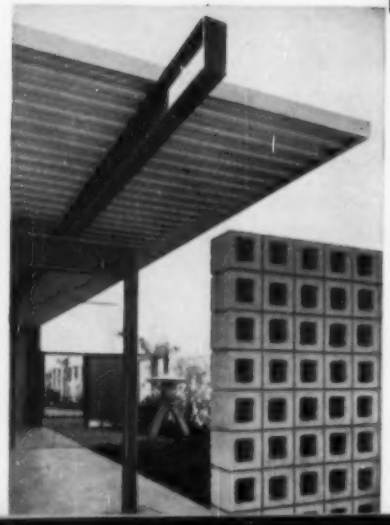
# Steel brings the wide open spaces indoors

Eichler Homes' new experimental house, the X-100, takes a long, hard look into the future of production dwellings. Many of the forward-looking features previewed in this research house are steel, or they depend on steel: unconfined, inter-related space, indoor-outdoor integration and maximum design flexibility.

Discussing their interest in steel homes, Edward Eichler underlined the great stability and permanence of steel construction . . . the fact that it doesn't check or warp and paints economically. There's the barest minimum of upkeep necessary with a steel frame house and, of course, termites cease to be a problem.

*Entering through this dramatic garden court, you pass into the living, dining, kitchen, all-purpose and children's play area without a wall to break the openness Eichler seeks. Only the bedrooms and "utility core" have partitions (non-bearing) or draw-drapes for privacy (and these can be moved according to the needs of a growing family or new owners.)*



USS

*The X-100 was designed to utilize standard United States Steel sections: 4" H13# for vertical columns; 8" WF13# and 10" WF17# for roof beams. There was also a variety of small angles, T's and channels involved. Steel roof decking was fabricated by H. H. Robertson.*

*Architect: A. Quincy Jones and Frederick Emmons, AIA, Los Angeles*
*Steel Erection: Herrick Iron Works, Oakland*
*X-100 Location: San Mateo Highlands, Calif.*

*The thin crisp lines of small steel members produce a light, elegant feeling and a "floating roof." To replace an 8" steel ceiling beam (spanning 26') with a wood member of equivalent strength, the architect would need to specify bulky 16" timbers.*

**ARCHITECTS & ENGINEERS:** If you are interested in receiving more information on the use of United States Steel in residential construction, send us your name and address and we will forward the material as it becomes available. Write; Architects & Engineers Service, United States Steel Corporation, Columbia-Geneva Steel Division, 120 Montgomery Street, San Francisco 6, California.

*Western homes of the future are now building with steel...* **UNITED STATES STEEL**

**CONVENTIONS:**

*(Continued from page 48-12)*

Sparked by the discussion on Colorado River Development, the conference adopted a resolution calling on regional director Bradley Kidder of Santa Fe to form a regional committee "charged with the responsibility for carrying out the conference theme — Resources — People — Architecture — by establishing what can be done to effect an imaginative approach to the development of areas of incomparable beauty, included in the Colorado River Plan, by individuals or groups fully capable of undertaking such a task; by contacting immediately appropriate State and Federal officials; and by continuing pressure until some effective action along these lines is assured." Unanimous acceptance of this resolution clearly indicated professional understanding of the obligations of leadership which conference speakers had spelled out.

Five "awards of excellence" were made in the annual awards competition for work by architects of the region. These went to James S. Sudler, Denver, for the United States National Bank building; Dean Gustavson, Salt Lake City, for the Green River, Utah, School; Hobart Wagener, Boulder, Colo., for the Mountain Savings and Loan building; Ralph Haver, Phoenix, for a furniture store in Phoenix; and Flatow and Moore, Albuquerque, for a grade school at Farmington, New Mexico.

Lloyd Snedaker was general chairman for the conference; W. Rowe Smith is president of the Utah chapter.

***Structural Engineers of California***

For the first time in its 25 years of conventions, the Structural Engineers Association of California held its annual meeting outside its home state — at Reno, Nevada — for a purpose: this year it had invited engineers from the neighboring states of Oregon and Washington to meet with them as a start toward further regional meetings of the three states. Jack Lyerla and F. Honey, presidents of the Washington and Oregon associations, were among the out-of-state engineers present.

Technical sessions featured discussions of new materials and future uses of known construction methods such as precast thin shell concrete, plastic laminates and sandwich construction, prestressed concrete and curtain walls. Speakers included W. G. Kirkland, American Iron and Steel Institute; Leon C. Bibber, U. S. Steel Corporation Applied Research Laboratory; Prof. Nathan Newmark, University of Illinois; Prof. Willard Oberdick, University of Michigan; Alan Freas, U. S. Forest Products Laboratory; and Ben C. Gerwick Jr.

Dean Morrough O'Brien of the University of California, speaking on the "Future of Engineering Manpower," urged structural and civil engineers to "publicize the satisfactions and worth of their accomplishments so as to attract recruits to the field" and emphasized his belief that design is the fundamental function of the engineer.

To meet the requirements of blast resistant design of the future, the engineer will have to understand dynamic problems as well as statics, according to Prof. N. M. Newmark, who spoke on "Design for Blast Protection." New and more complicated methods of computation will be involved in these problems, he said, and the engineer will find that he must use high-speed computers to carry out the details of his design work. Use of such machines, he suggested along with John Kozak of the California Division of Highways Bridge Department, can provide at least part of the

*(Continued on page 48-20)*


**Built-in telephone outlets are a big selling point in today's home**

*says H. J. HARLOW, Jr.*, Harlow Construction Company, Sacramento, California

Homes built by the Harlow Construction Company have telephone outlets located for maximum convenience—in rooms where the family spends a lot of time. Concealed telephone wiring is another feature that adds to the livability and value of Harlow homes.

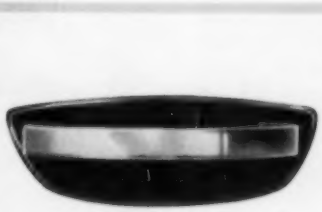
To successful builders like Mr. Harlow, who are setting living standards in the Pacific West, complete telephone planning is as basic as adequate electrical wiring. Pacific Telephone is always ready to help you plan built-in telephone facilities. Just call us and ask for our *free* Architects and Builders Service.

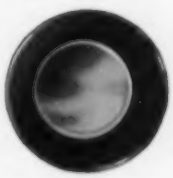
*Specify built-in telephone facilities —a sign of good planning*

Pacific Telephone

# *Accent*... new styling in cabinet hardware

## by STANLEY





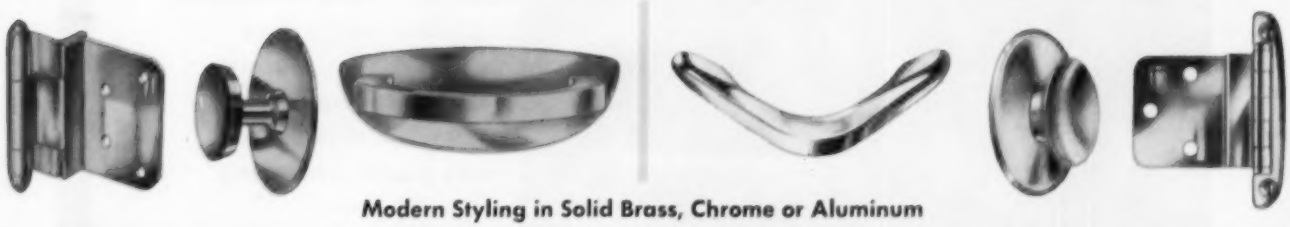
Here is smart, dramatic styling for the kitchens and family rooms in your new homes — achieved by bright chrome or brass against contrasting black backplates.

It's *Accent*, Stanley's newest product in our continuing program to design quality cabinet hardware for every taste.

The right cabinet hardware adds a touch that builders and homeowners appreciate. Be sure to look over Stanley's complete, distinctive line before specifying your cabinet hardware.

**TRADITIONAL OR MODERN, STANLEY CABINET HARDWARE FEATURES QUALITY AND GOOD TASTE**

**Spear Point or Square End Designs in Antique Black or Copper**



**Modern Styling in Solid Brass, Chrome or Aluminum**

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105 Second Ave., North

**CONVENTIONS:**

*(Continued from page 48-18)*

answer to the present noticeable shortage of technically trained personnel, since they will free the engineer for the establishing of design concepts.

***Landscape Architects***

Almost 200 landscape architects and their wives and guests met in Santa Barbara at the second annual convention of the California Council of Landscape Architects, a statewide organization made up of the five professional landscape groups in California.

Principal speaker was Victor Gruen of Los Angeles, Detroit and New York, who spoke on the effect of mass production, mass transportation and mass consumption on the environment of human beings. Rediscovery of the pleasures of walking where metal, noise, fumes and danger — a result of today's overemphasis on the individual car as a means of transportation — have been eliminated, and the revitalizing effect which replanning can have on downtown areas were listed as part of the benefits from an environment planned for man.

A panel discussion on "The Relationship of People to Their Environment, Urban and Suburban" followed Mr. Gruen's talk. Panelists included architects Whitney Smith, Ben Southland, and Arthur Gallion, landscape architects Garrett Eckbo and Theodore Osmundson and Elisabeth Thompson, ARCHITECTURAL RECORD's Western Section Editor.

**THE METROPOLITAN WEST:**

*(Continued from page 48-4)*

should be employed! If Proposition is passed, control over awarding contracts will be in the hands of two political appointees . . . who will become targets for influence peddlers to dictate how and to whom contracts will be given."

These arguments, along with the fact that two of the original backers of the proposition had changed sides and were by then opposing it, were enough for the majority of the voters. Proposition 10 went down in defeat.

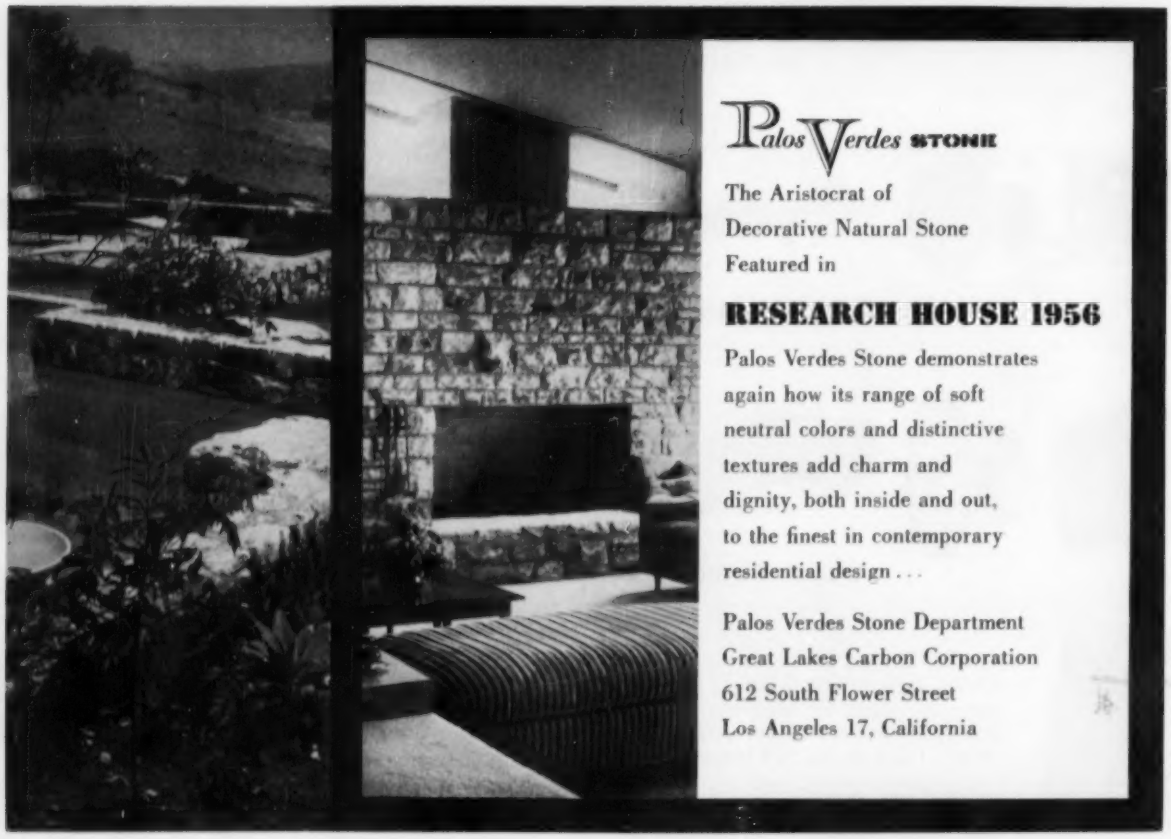
Out of the struggle, however, came a Joint Steering Committee of architects and engineers which had been formed during the campaign. It has now been organized as a permanent conference committee of the two professions for exchange of information and support in attainment of goals of mutual interest.

Already a new initiative to be submitted to the 1957 Legislation is being proposed, a statewide news service reports. This initiative (which under California law can be presented as a proposition for public vote) would cover all private business, said the news service, and would be "an incentive to private business to break what it terms a stranglehold on state work."

***States, Cities Vote for Schools, Airport***

Californians, in large enough number to pass the measure, agreed on November 6 that the state's program of aid to deficit school districts should be continued. They voted a $100,000,000 bond issue to make this possible. Since 1948 three such bond issues have been authorized by the voters. Californians further approved a $200,000,000 bond issue for construction at state institutions, particularly state colleges, mental hospitals and corrective institutions.

*(Continued on page 48-22)*



Andrew Jackson Elementary School, Norman, Oklahoma. Architects: Caudill-Rowlett-Scott and Associates, Oklahoma City. Contractor: Builders Construction Company, Inc., Oklahoma City. Windows: Lupton Architectural Projected.

## No Walls . . . just Lupton Metal Windows

Here is an ultimate in "open plan" buildings. Almost literally, this new school has no walls, just window after window and each is a Lupton Metal Window.

The roof, with wide overhang to give full sun protection during school hours, is supported by steel columns. Lupton Architectural Projected Windows make the non-load bearing "walls." Open-in ventilators at the sill assure ample ventilation. Here is modern design in its simplest, most functional form. The Lupton "walls", precision engineered, were designed and built with fifty years' metal window manufacturing experience.

For your next commission, investigate Lupton Windows. You'll find high quality, moderately priced through advanced manufacturing techniques. See them in Sweet's. And while you're looking, check Lupton Simplified Curtain-Walls — the modern, logical way to better buildings. They offer savings in construction time, complete design flexibility and lowest possible upkeep. We'll be glad to send complete information on Lupton products — steel and aluminum windows, and the Lupton Simplified Curtain-Wall System.

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**LUPTON**

**METAL WINDOWS AND CURTAIN-WALLS**

## THE METROPOLITAN WEST:

*(Continued from page 48-20)*

Several Western cities, aware not only of the obsolescence factor in some of their older school buildings but of the increasing birth rate, voted new bond issues for school construction. San Francisco asked for and got authority to issue $27,000,000 in bonds for new school construction to supplement the new buildings erected under the last bond issue of some years ago. San Diego also will have a $27,000,000 bond issue for new schools.

Seattle and some of its surrounding communities also voted in favor of bond issues for more schools. Seattle asked for $25,000,000 to build two new senior high schools, a junior high and a number of elementary schools, to make improvements and add gymnasium buildings to others and to replace portable buildings with permanent structures. Bellevue, Enumclaw, Lake Washington and Mercer Island asked for revenue from various sources to enable them to acquire sites and build new buildings.

San Francisco successfully campaigned for $25,000,000 in bonds for improvements to its airport as part of its program to ready the airport for the 150-passenger jet airliners that are expected to be in regular commercial use before 1960. Last spring Los Angeles passed a similar measure authorizing issuance of $59,000,000 in bonds to bring its airport into line with jet age requirements.

Not all bond issues were successful, however. In San Diego the civic auditorium bond issue proposal was again turned down, and in Orange County, Calif., $9,500,000 for a new courthouse and an administration building failed to be approved.

### *Los Angeles Votes on Height Limit*

By a 4 to 1 vote, Los Angeles city voters authorized lifting of the present height limitation on buildings. Argued for months, the new ordinance will assure buildings "as high as structurally and economically feasible." Present law limits them to 12 stories.

## OREGON

### *Exposition-Recreation Center to be on East Side*

Two years ago the people of Portland prided themselves on passing an $8,000,000 bond issue to make possible construction of an Exposition-Recreation center which would give the city the convention hall facilities it has long needed. A commission was appointed to select a site and get the project under way. But such a controversy developed over the location of the buildings that the issue was finally put to a vote last May. Of the several sites suggested (and studied architecturally by Skidmore, Owings and Merrill and financially and economically by Stanford Research Institute, and in relation to the city's master plan by the Planning Commission), a site on the east side of the Willamette River took the fancy of the larger number of voters. The vote for the east side site was inconclusive enough — less than 700 majority — to call for a recount, but even so it stood.

With last month's election, the status quo was maintained. The east side site was considered by its proponents to be more accessible to a greater number of Portland's residents. Opposition to this site was based on its distance from downtown Portland where the majority of the city's hotels are located. A major dissenter to either location was the Pacific International Livestock exposition which had hoped — and worked — for a site near its present buildings at Delta Park, a low-lying area subject to flooding.

## CALENDAR OF WESTERN EVENTS

• December 7: Symposium, "Ecology of Air Transport," sponsored by Engineering Extension Division and Institute of Transportation and Traffic, ULCA; Aeronautical Engineering Association; and Institute of Aeronautical Science; at 7660 Beverly Blvd., Los Angeles

• January 7–February 6: "Designs from Britain" (in photograph and sample), Upstairs Gallery, Harris Hall, Fine Arts Department, University of Southern California, Los Angeles

• January 13: Closing, Gladys Lloyd Robinson and Edward G. Robinson Collection of Impressionist and Post-Impressionist Art, California Palace of the Legion of Honor, Lincoln Park, San Francisco

• January 14–February 25: "Art in Business Architecture," Denver Art Museum, Denver, Colo.

• January 20–26: Design Conference, "Exploration of Contemporary Architectural Approaches and Ideals," sponsored by Alberta Association of Architects, Banff School of Fine Arts, Banff, Alta., Canada

• January 20–22: "Today's Tool for Tomorrow's Research," symposium on solar furnace design and operation, sponsored by Stanford Research Institute, Association for Applied Solar Energy, Arizona State College and University of Arizona, Hotel Westward Ho, Phoenix, Ariz.

• January 21–February 1: Industrial Forestry Seminar, sponsored by Yale University and University of California Schools of Forestry, Mulford Hall, University of California, Berkeley

• January 30–31: "Improving the Engineer — a Dual Responsibility of Industry and the Engineering School," ninth annual college-industry conference sponsored by American Society for Engineering Education, UCLA, Los Angeles

## WESTERN SECTION

### INDEX TO ADVERTISING

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*Catalogs of the firms listed below are available in the 1956 Sweet's Catalog Files as follows:*

*a — Architectural File (green)*
*ic — Industrial Construction File (blue)*
*lc — Light Construction File (yellow)*


| | | |
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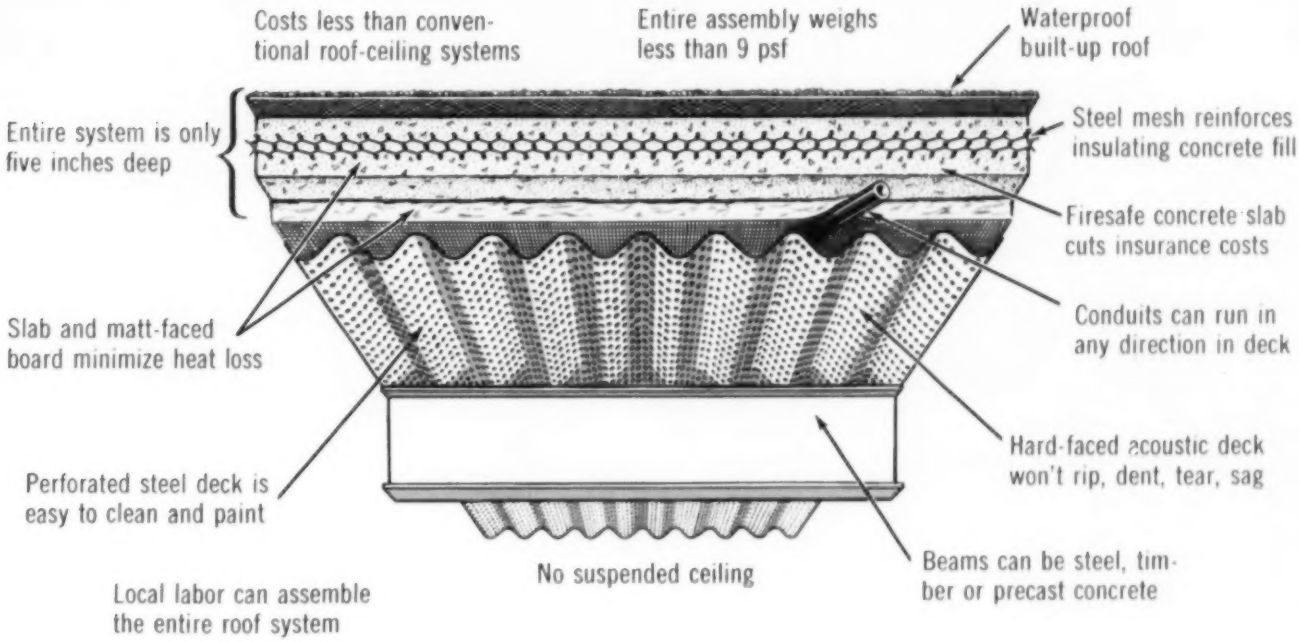
| a-ic | Baxter, J. H. & Co. | 48–15 |
| | Columbia-Geneva Steel Division | 48–6–16–17 |
| a | Flynn, Michael Manufacturing Co. | 48–21 |
| a | Lockwood Hardware Manufacturing Co. | 48–14 |
| | Pacific Tel. & Tel. Co. | 48–18 |
| | Palos Verdes Stone | 48–5–20 |
| | Porcelain Enamel Publicity Bureau | 48–9 |
| | Smoot-Holman Company | 48–7 |
| a | Soule Steele Company | 48–11 |
| a | Stanley Works | 48–19 |
| a-ic | Sunbeam Lighting Company | 48–13 |
| i-c | United States Steel Corporation | 48–6–16–17 |


. . . . . .

**Western advertising offices: LOS ANGELES, Bob Wettstein, 672 S. Lafayette Park Pl.; PORTLAND, Bob Wettstein, 921 S. W. Washington St.; SAN FRANCISCO, Bob Wettstein, Howard Bldg., 209 Post St.**


Costs less than conventional roof-ceiling systems
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Waterproof built-up roof
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Steel mesh reinforces insulating concrete fill
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Slab and matt-faced board minimize heat loss
Hard-faced acoustic deck won't rip, dent, tear, sag
Perforated steel deck is easy to clean and paint
No suspended ceiling
Beams can be steel, timber or precast concrete
Local labor can assemble the entire roof system

# NEW IDEA IN SCHOOL ROOFS: STRUCTURAL DECK, LIGHTWEIGHT INSULATION AND ACOUSTIC CEILING COMBINED IN A 5-INCH SYSTEM

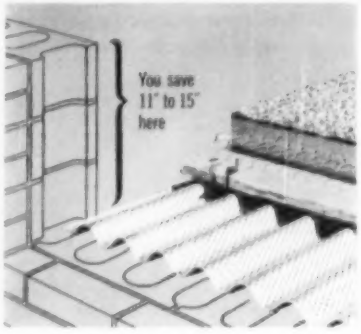
# NEW "STRUCTUR-ACOUSTIC" DECK

## LOW-COST, INCOMBUSTIBLE DECK WITH ACOUSTIC UNDERSIDE ELIMINATES SUSPENDED

Using a *new combination* of building materials, research engineers of Granco Steel Products Company have recently perfected an acoustical roof system only 5 inches deep. Heart of the system is STRUCTUR-ACOUSTIC—a galvanized, corrugated steel sheet with acoustic underside. Demonstrated on these pages are unique features of this new deck and the economical roof system it makes possible . . . news of interest and importance to *every* designer, builder and planner of schools:

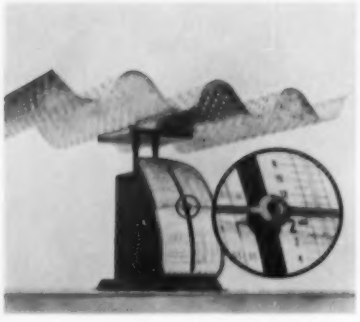
### STRONG

Made of high-tensile, tough-temper steel, Structur-Acoustic serves as structural deck. Photo shows how a sheet of Structur-Acoustic—placed on simulated beams 5′ apart—easily supports a 175-lb. man. The entire roof assembly is designed to carry normal roof loads with adequate factor of safety.




### SAVES WALL HEIGHT

Shorter walls mean savings. Structur-Acoustic shortens walls by making possible a roof system only 5″ deep! A suspended ceiling system usually requires 16″ to 20″ in depth. *By saving the 11″ to 15″ in extra wall height needed to enclose this system*, you save thousands of dollars in materials and labor.



### LIGHTWEIGHT

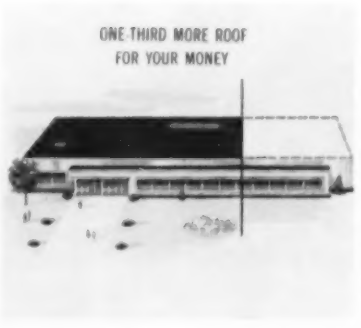
Note that Structur-Acoustic weighs only 2 psf. Add 6 psf for concrete and ½ psf for acoustic board and the result is a roof system weighing less than 9 psf! This means fewer and lighter framing members, smaller columns and footings, lower building costs, faster, easier construction.

### GOOD ACOUSTICS

Structur-Acoustic steel sheets are perforated with a grid of holes 5/32″ in diameter, spaced about ½″ on centers. Tests conducted by Riverbank Acoustical Laboratories indicate that this roof system with a 2½″ slab provides a Noise Reduction Coefficient of 0.80 and a U factor in excess of 0.14.

### FIRESAFE

Structur-Acoustic is fire-safe and so is the lightweight insulating concrete slab beneath the built-up roof. This important safety benefit protects both the building and its contents and occupants (always a vital consideration in schools!)... also helps keep owner insurance costs to a minimum.




### LOW COST

Structur-Acoustic offers one-third more roof for your dollar than conventional school roofs with similar features. Wall height is saved. Insurance rates and maintenance are reduced. The system is permanent, relies primarily on local labor, keeps building dollars in the community.

### HARD-FACED

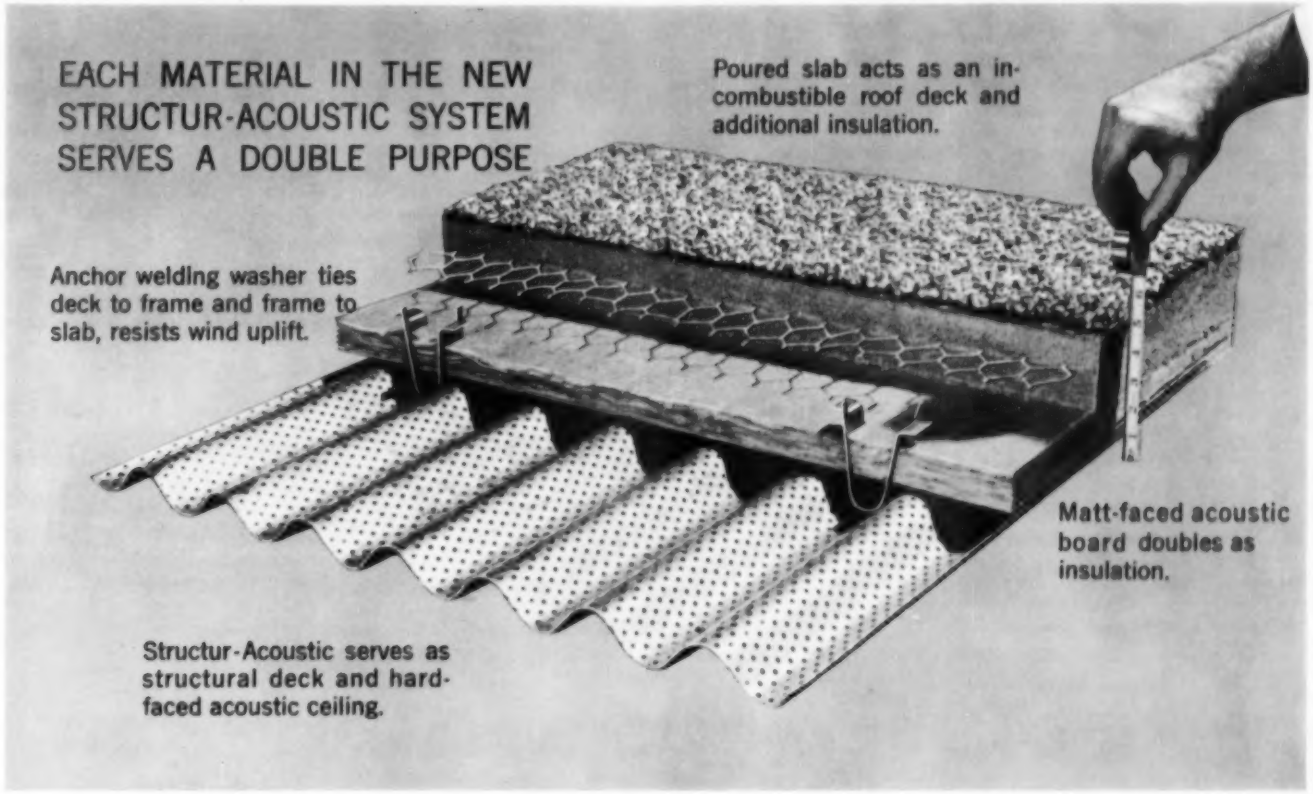
Pencil "jab test" proves the rigid toughness of Structur-Acoustic. Paper clips can't dent the surface. Sheets retain their original shape . . . won't rip, tear, sag or stain . . . can be easily cleaned and painted. Low maintenance features make Structur-Acoustic perfect for installation in schools.

### ATTRACTIVE

The clean, corrugated underside of Structur-Acoustic is distinctive in appearance, reflects light, can be painted any color to meet the decorating scheme. Light fixtures are easily attached. Structur-Acoustic is washable, won't dent or lose its shape. Its hard face insures *lasting* beauty.

# MAKES 5-INCH ROOF SYSTEM POSSIBLE

## CEILING, SAVES 11″ TO 15″ IN WALL HEIGHT, MEETS ALL ROOFING REQUIREMENTS

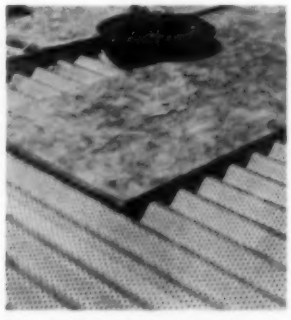

EACH MATERIAL IN THE NEW STRUCTUR-ACOUSTIC SYSTEM SERVES A DOUBLE PURPOSE
Poured slab acts as an incombustible roof deck and additional insulation.
Anchor welding washer ties deck to frame and frame to slab, resists wind uplift.
Matt-faced acoustic board doubles as insulation.
Structur-Acoustic serves as structural deck and hard-faced acoustic ceiling.

Offering rigidity, the permanence of concrete, fire resistance, high insulating value and low dead load, the Structur-Acoustic roof system satisfies all roofing and acoustical requirements. All materials in the system—steel, glass fiber and concrete—serve for the life of the building. Perforated, corrugated Structur-Acoustic units are fabricated from steel having a minimum yield point of 80,000 psi. This high-strength steel is available in various gauges to meet job framing conditions economically.

### EASY-TO-ASSEMBLE ROOF SYSTEM USES LOCAL LABOR

**EASY TO PLACE**

Structur-Acoustic units arrive at the job site conveniently bundled and pre-cut to fit the steel framing. Sheets handle easily, place fast on beams spaced on 4′ to 7′ centers. Units are welded to structural frame in *seconds*.



**TAKES ABUSE**

In place, Structur-Acoustic withstands normal abuse, becomes a safe working platform for trades. The matt-faced acoustic board placed on top of Structur-Acoustic units is 1″ glass fiber board and has a density of 6 pcf.

**FIRM ROOF BASE**

The concrete slab provides a firm, inorganic, permanent base for the built-up roof and adds fire safety. Conduits can be run in *any direction* in the concrete slab. Result: Shortest possible runs using least labor and materials.

**LOCAL LABOR**

Application of a waterproof built-up roof completes the job! Note: *All* materials are assembled at job site by local labor. No bulky assemblies to be fabricated and shipped long distances at high freight rates — a major saving.

TURN THE PAGE →

GRANCO STEEL PRODUCTS CO.
Dept. SA-167, 6506 N. Broadway, St. Louis 15, Missouri

Please send me without cost or obligation a copy of the new Structur-Acoustic Product Manual No. BT-571.

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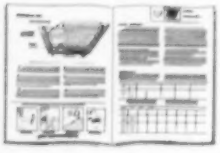
FREE STRUCTUR-ACOUSTIC ← CATALOG

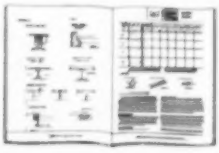
MAIL THIS COUPON ← NOW

## HERE'S WHAT NEW CATALOG CONTAINS

**1.** Photos, cutaway drawings and complete description of the Structur-Acoustic "triple duty" roof system and its advantages to architects, contractors and owners.



**2.** Step-by-step instructions on roof-system construction... physical properties of Structur-Acoustic ..."quick selection" table for one- and two-span roof construction.



**3.** Detail drawings on wall sections, anchor details, eave overhangs, closure angles (sound stop and expansion joint) . . . tables on Structur-Acoustic load capacities.

**4.** Information on Structur-Acoustic accessories, suggested specifications... facts on Granco design service and other Granco products for the construction industry.

# STRUCTUR-ACOUSTIC . . . WHEREVER SOUND CONTROL IS NEEDED

SCHOOLS. Structur-Acoustic roof systems are ideally suited to classrooms, where economy, low maintenance, good acoustics are prime requisites.

RADIO-TV. Adaptability of system is shown in new U. of Michigan press box. Structur-Acoustic deadens the chatter of crowds, typewriters, etc.

## WHILE STRUCTUR-ACOUSTIC WAS DEVELOPED WITH CLASSROOMS IN MIND, IT ALSO ADAPTS TO MANY OTHER COMMERCIAL PROJECTS:

**ONE FLOOR OFFICES** → Low maintenance of hard-faced acoustic and low first cost place Structur-Acoustic within reach of every new building owner.

**FACTORIES AND MACHINERY ROOMS** → A dependable, economical Structur-Acoustic system offers the forward planner many new opportunities for employee comfort.

**STORES AND SHOPPING CENTERS** → The economies in construction and low maintenance make this roof system perfect for stores and offices in shopping centers.

*Structur-Acoustic is manufactured by*

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# THE RECORD REPORTS: CONSTRUCTION COST INDEXES

**Labor and Materials** — **U. S. average 1926–1929 = 100**

*Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.*

**NEW YORK**

| Period | Residential | | Apts., Hotels Office Bldgs. | Commercial and Factory Bldgs. | |
|---|---|---|---|---|---|
| | Brick | Frame | Brick and Concr. | Brick and Concr. | Brick and Steel |
| 1930 | 127.0 | 126.7 | 124.1 | 128.0 | 123.6 |
| 1935 | 93.8 | 91.3 | 104.7 | 108.5 | 105.5 |
| 1939 | 123.5 | 122.4 | 130.7 | 133.4 | 130.1 |
| 1946 | 181.8 | 182.4 | 177.2 | 179.0 | 174.8 |
| 1947 | 219.3 | 222.0 | 207.6 | 207.5 | 203.8 |
| 1948 | 250.1 | 251.6 | 239.4 | 242.2 | 235.6 |
| 1949 | 243.7 | 240.8 | 242.8 | 246.4 | 240.0 |
| 1950 | 256.2 | 254.5 | 249.5 | 251.5 | 248.0 |
| 1951 | 273.2 | 271.3 | 263.7 | 265.2 | 262.2 |
| 1952 | 278.2 | 274.8 | 271.9 | 274.9 | 271.8 |
| 1953 | 281.3 | 277.2 | 281.0 | 286.0 | 282.0 |
| 1954 | 285.0 | 278.2 | 293.0 | 300.6 | 295.4 |
| 1955 | 293.1 | 286.0 | 300.0 | 308.3 | 302.4 |
| July 1956 | 313.7 | 304.8 | 323.8 | 329.2 | 328.5 |
| Aug. 1956 | 313.7 | 304.8 | 323.8 | 329.2 | 328.5 |
| Sept. 1956 | 313.2 | 304.1 | 324.0 | 334.3 | 329.2 |
| | % increase over 1939 | | | | |
| Sept. 1956 | 153.6 | 148.4 | 147.9 | 150.6 | 153.0 |

**ATLANTA**

| Period | Residential | | Apts., Hotels Office Bldgs. | Commercial and Factory Bldgs. | |
|---|---|---|---|---|---|
| | Brick | Frame | Brick and Concr. | Brick and Concr. | Brick and Steel |
| 1930 | 82.1 | 80.9 | 84.5 | 86.1 | 83.6 |
| 1935 | 72.3 | 67.9 | 84.0 | 87.1 | 85.1 |
| 1939 | 86.3 | 83.1 | 95.1 | 97.4 | 94.7 |
| 1946 | 148.1 | 149.2 | 136.8 | 136.4 | 135.1 |
| 1947 | 180.4 | 184.0 | 158.1 | 157.1 | 158.0 |
| 1948 | 199.2 | 202.5 | 178.8 | 178.8 | 178.8 |
| 1949 | 189.3 | 189.9 | 180.6 | 180.8 | 177.5 |
| 1950 | 194.3 | 196.2 | 185.4 | 183.7 | 185.0 |
| 1951 | 212.8 | 214.6 | 204.2 | 202.8 | 205.0 |
| 1952 | 218.8 | 221.0 | 212.8 | 210.1 | 214.3 |
| 1953 | 223.3 | 224.6 | 221.3 | 221.8 | 223.0 |
| 1954 | 219.6 | 219.1 | 223.5 | 225.2 | 225.4 |
| 1955 | 225.3 | 225.1 | 229.0 | 231.5 | 231.8 |
| July 1956 | 239.8 | 238.4 | 245.3 | 247.8 | 252.6 |
| Aug. 1956 | 240.0 | 238.5 | 245.4 | 247.9 | 252.7 |
| Sept. 1956 | 239.7 | 238.0 | 245.8 | 248.2 | 252.9 |
| | % increase over 1939 | | | | |
| Sept. 1956 | 177.8 | 186.4 | 158.5 | 154.8 | 167.1 |

**ST. LOUIS**

| | | | | | |
|---|---|---|---|---|---|
| 1930 | 108.9 | 108.3 | 112.4 | 115.3 | 111.3 |
| 1935 | 95.1 | 90.1 | 104.1 | 108.3 | 105.4 |
| 1939 | 110.2 | 107.0 | 118.7 | 119.8 | 119.0 |
| 1946 | 167.1 | 167.4 | 159.1 | 161.1 | 158.1 |
| 1947 | 202.4 | 203.8 | 183.9 | 184.2 | 184.0 |
| 1948 | 227.9 | 231.2 | 207.7 | 210.0 | 208.1 |
| 1949 | 221.4 | 220.7 | 212.8 | 215.7 | 213.6 |
| 1950 | 232.8 | 230.7 | 221.9 | 225.3 | 222.8 |
| 1951 | 252.0 | 248.3 | 238.5 | 240.9 | 239.0 |
| 1952 | 259.1 | 253.2 | 249.7 | 255.0 | 249.6 |
| 1953 | 263.4 | 256.4 | 259.0 | 267.6 | 259.2 |
| 1954 | 266.6 | 260.2 | 263.7 | 273.3 | 266.2 |
| 1955 | 273.3 | 266.5 | 272.2 | 281.3 | 276.5 |
| July 1956 | 289.3 | 280.9 | 288.5 | 299.8 | 294.3 |
| Aug. 1956 | 289.3 | 280.9 | 288.5 | 299.8 | 294.3 |
| Sept. 1956 | 289.1 | 280.5 | 289.2 | 300.4 | 296.3 |
| | % increase over 1939 | | | | |
| Sept. 1956 | 162.3 | 162.1 | 143.6 | 150.8 | 149.0 |

**SAN FRANCISCO**

| | | | | | |
|---|---|---|---|---|---|
| 1930 | 90.8 | 86.8 | 100.4 | 104.9 | 100.4 |
| 1935 | 89.5 | 84.5 | 96.4 | 103.7 | 99.7 |
| 1939 | 105.6 | 99.3 | 117.4 | 121.9 | 116.5 |
| 1946 | 159.7 | 157.5 | 157.9 | 159.3 | 160.0 |
| 1947 | 193.1 | 191.6 | 183.7 | 186.8 | 186.9 |
| 1948 | 218.9 | 216.6 | 208.3 | 214.7 | 211.1 |
| 1949 | 213.0 | 207.1 | 214.0 | 219.8 | 216.1 |
| 1950 | 227.0 | 223.1 | 222.4 | 224.5 | 222.6 |
| 1951 | 245.2 | 240.4 | 239.6 | 243.1 | 243.1 |
| 1952 | 250.2 | 245.0 | 245.6 | 248.7 | 249.6 |
| 1953 | 255.2 | 257.2 | 256.6 | 261.0 | 259.7 |
| 1954 | 257.4 | 249.2 | 264.1 | 272.5 | 267.2 |
| 1955 | 268.0 | 259.6 | 275.0 | 284.4 | 279.6 |
| July 1956 | 280.6 | 271.3 | 290.9 | 301.3 | 298.7 |
| Aug. 1956 | 282.0 | 273.2 | 293.0 | 302.2 | 300.9 |
| Sept. 1956 | 280.8 | 271.6 | 293.1 | 302.3 | 300.8 |
| | % increase over 1939 | | | | |
| Sept. 1956 | 165.9 | 173.5 | 149.7 | 148.0 | 158.2 |

**Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:**

**index for city A = 110**
**index for city B = 95**
**(both indexes must be for the same type of construction).**

**Then: costs in A are approximately 16 per cent higher than in B.**

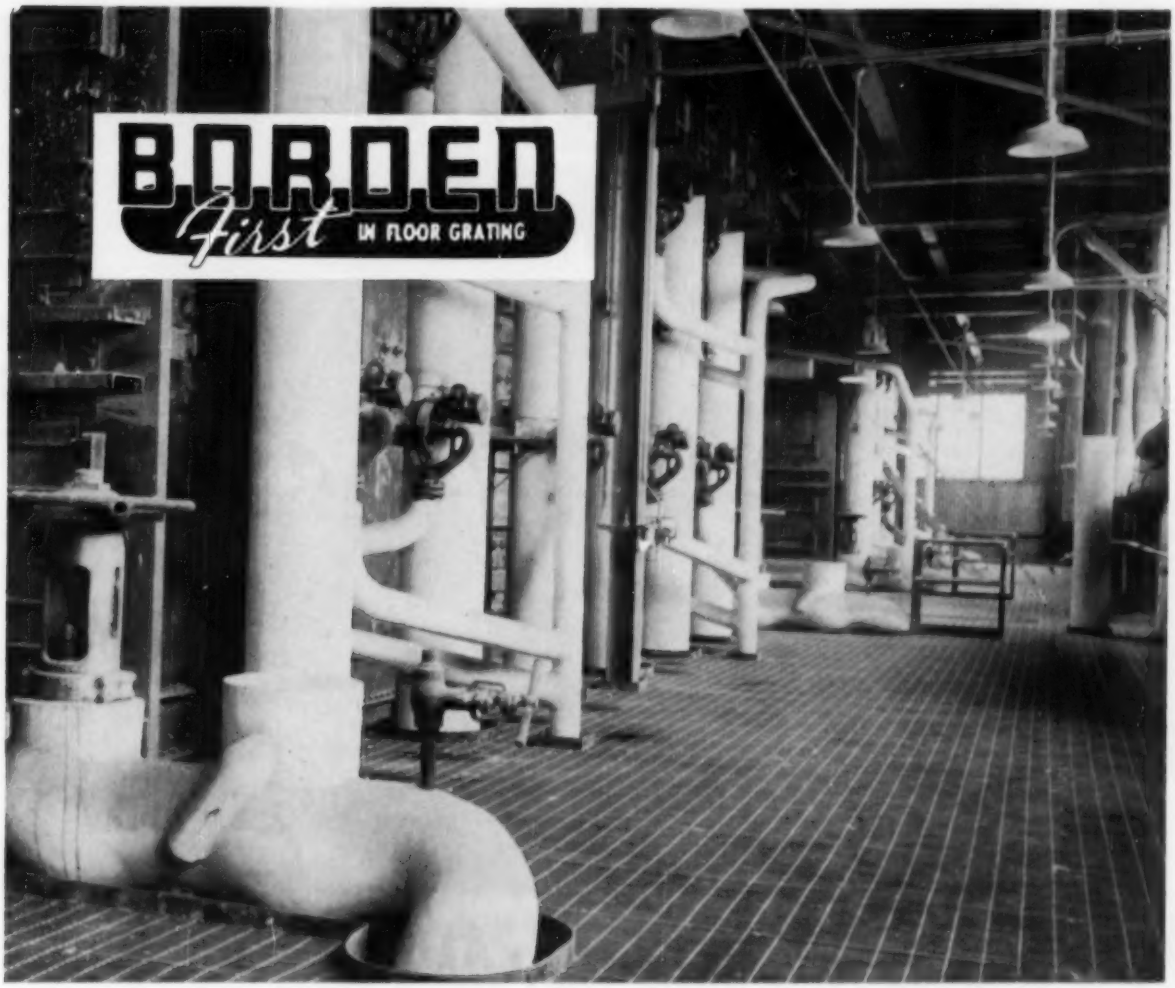
$$\frac{110-95}{95} = 0.158$$

**Conversely: costs in B are approximately 14 per cent lower than in A.**

$$\frac{110-95}{110} = 0.136$$

**Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.**

**Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.**

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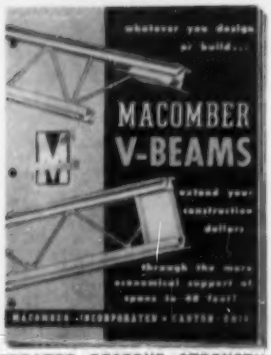


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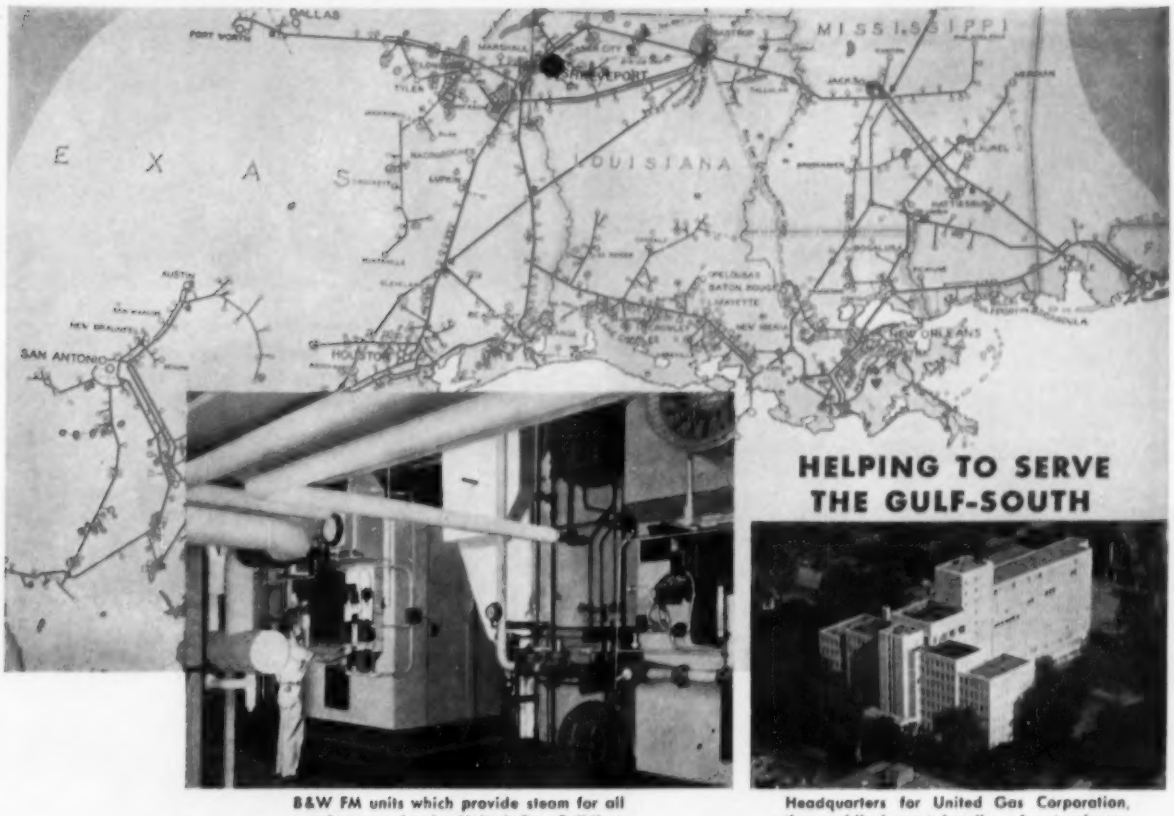


B&W FM units which provide steam for all requirements in the United Gas Building.

Headquarters for United Gas Corporation, the world's largest handler of natural gas.

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United Gas Corporation and its subsidiaries of Shreveport, Louisiana, one of the largest systems of its kind in the world, supplies natural gas to a large and growing part of the southern section of the United States —the "Gulf South". And when the installation of modern heating and air conditioning facilities in the company's Shreveport headquarters building was being studied, the same careful consideration applying to other phases of the company's far flung operations was given to the selection of boilers. As other users have done, United Gas chose two B&W FM Units for a reliable and economical steam source.

In the newly enlarged United Gas Building, the FMs supply the heating load during the winter and steam for the much heavier summertime air-conditioning load. They are gas-fired and designed for manual or semi-automatic operation. Each boiler is designed to generate up to 11,000 lb of steam per hr at an operating pressure of 160 psi. Since their installation in August 1953, the FM Units have provided completely satisfactory service, efficiently and economically.

B&W FM Boilers are available in standard sizes to 40,000 lb of steam per hr at pressures to 235 psi. Many are also in service at higher pressures and with moderate superheat. Write for Bulletin G-76 for complete details. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

G-744

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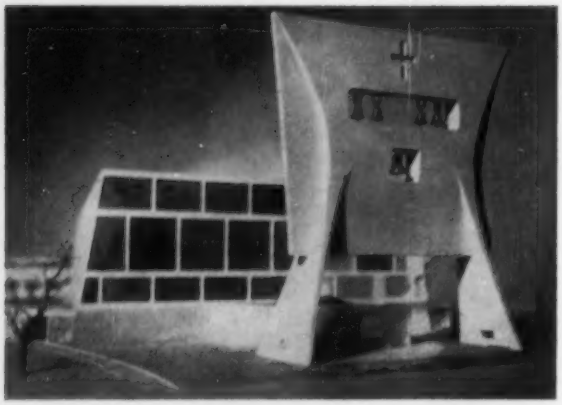
**BABCOCK & WILCOX**

BOILER DIVISION



*Left, Project for Abbey of St. John, Collegeville, Minn., by Marcel Breuer. Below, Catholic Church of St. Francis at Pampulha, Brazil, by Oscar Niemeyer*

# THE ROLE OF ARCHITECTURE IN CHURCH REVITALIZATION

BY THE VERY REV. DARBY W. BETTS

*Dean of the Cathedral of St. John, Providence, R. I.*

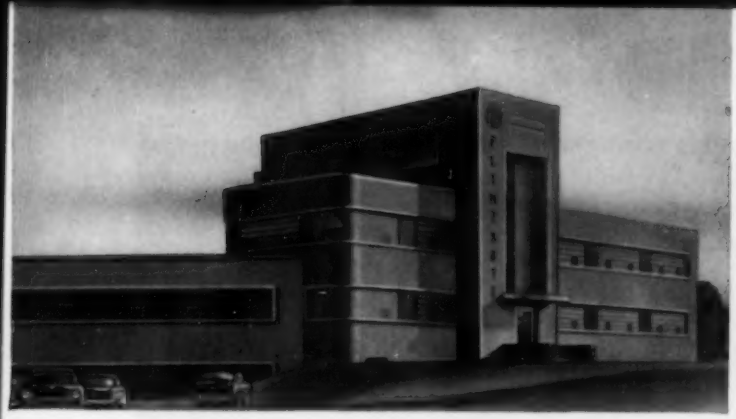
*The Modern Church.* By Edward D. Mills. Frederick A. Praeger, New York, Distributed in cooperation with F. W. Dodge Corporation 1956. 190 pp. Illus. $9.75

AFTER A LAPSE of some fifty years, notable books dealing with the Church's use of architecture are beginning to appear. Their frequency and caliber lead us to hope that contemporary architecture is beginning to seek to serve the Church with a devotion that has not been known since the Victorian era. *The Modern Church* by Edward D. Mills, a well known practicing architect of England and an obvious expert on the subject, is a worthy addition to this growing library. The Foreword by Basil Spence and the Author's Preface amply demonstrate an allegiance to the conviction that the Church is a "Meeting House" where man meets God in the midst of the human community with all function and design centering upon and springing outward from this amazing encounter. "Architecture in the service of the Church" becomes a live reality and is well illustrated in this most helpful book.

The sound historical introduction reminds us that the Church's use of architecture has played a vital role in the living expression of her doctrine and program. The exciting chapter on the Church and the Community drives home with great force the undeniable fact that architecture must play its part in the revitalizing of a Church which has tended to become separated from the seculator community in its architecture as well as in many of its other manifestations. If the Church is to rediscover and continue its vital role of being the most direct line of communication between almighty God and his world, it must speak in the venacular architecturally as well as in sermons and community service. *The Modern Church* is a good record of the architect's attempt to do this in many countries and over a wide span of years in our own age. It properly relates architecture to the allied arts, and goes a long way in re-establishing architecture's position as the mother of man's outward manifestations of his artistic insights.

To be appreciated properly and to be of the richest value to the reader, this book must be seen as a whole rather than dipped into as a source for particular designs. Covering all sizes of buildings and a representative number of the divisions of Christendom, it is a fine display of what is being done through the renewed cooperation between architecture and the Church. Obviously aware of and in sympathy with the Liturgical Movement now firmly established as a cleansing and enriching element in all branches of Christendom, it will be of little comfort to those who seek safety in a status quo that has actually become past history. But to the clergyman, layman and architect who

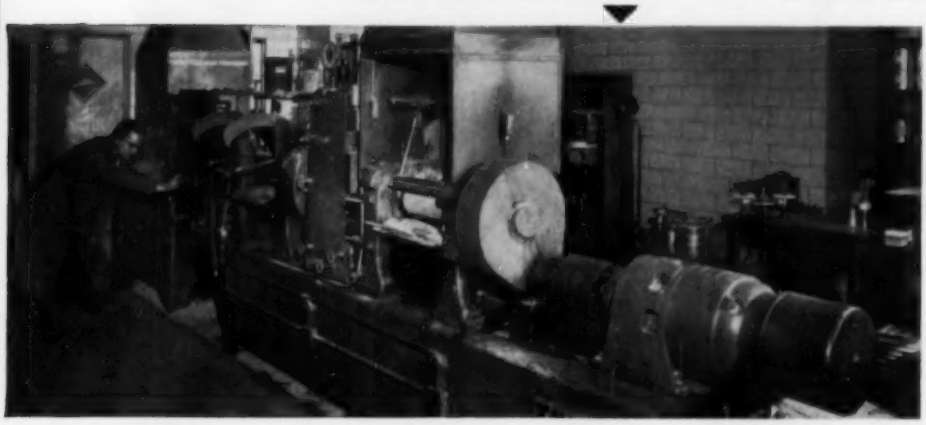
*(Continued on page 62)*



**The Story Begins.** Here's the multi-million dollar Flintkote Research Laboratory at Whippany, N. J., where many a "Flintkote First" has been conceived and developed. Here, also, is where the search for a superior new asphalt tile was begun . . . the H.M.W. Tile now being manufactured by the Tile-Tex Division of Flintkote.

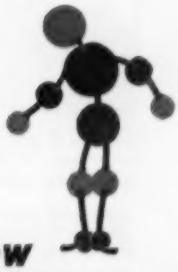
**The Story Unfolds.** Working separately, yet in close cooperation with the Flintkote Research Laboratory, are scientists in the Tile-Tex Laboratory at Chicago Heights, Ill. Here many important advancements and refinements in floor tile are made. Developments that made Tile-Tex a leader in light attractive colors. Marbleization. Longer wearing tile. Flexible tile. Plank-shaped tile. And here the new H.M.W. formulations were perfected for Tile-Tex Asphalt Tile.

**Another chapter** of the story of the new H.M.W. Tile-Tex Tile was completed in this Tile-Tex Pilot Plant. Here the trial runs were thoroughly pre-tested . . . proved. Here the rich Tile-Tex manufacturing experience and "know-how" perfected the new H.M.W. Tile-Tex Asphalt Tile. *Read about its advantages below.*



*See the* **TILE-TEX line Booth 817, Coliseum Section, at the →**

National Association HOME BUILDERS Annual CONVENTION EXPOSITION January 20-24 1957



# THE H.M.W. STORY!

HIGHER MOLECULAR WEIGHT

## ...Research mastery and manufacturing know-how team up to bring you this advanced new Tile-Tex Asphalt Tile.

**TO YOU, THE ARCHITECT . . .**

the H.M.W. story means the availability of a greatly improved asphalt tile with many practical and trouble-free advantages! Advantages that have been tested and proved in the field. Advantages that make more attractive floors . . . faster installations. More satisfied clients.

**TO THE TECHNICIAN . . .**

this H.M.W. story means that: reinforced Higher Molecular Weight resins are now ideally formulated to produce a superior new Tile-Tex Asphalt Tile. A joint achievement of our research and manufacturing departments.

**1. MORE FLEXIBLE!** Tile-Tex H.M.W. Tile has obtained the highest flexure possible with lowest indention.

**2. GREATER DIMENSIONAL STABILITY!** By use of H.M.W. resins, dimensions are not distorted under normal shipping and storage conditions.

**3. GOES DOWN FAST!** Tile-Tex H.M.W. Tile conforms to sub-floor more quickly. Lowers installation costs.

**4. BETTER LAY UP!** H.M.W. resins are tough and cut cleaner. Tile lay up easier and tighter, making a more attractive floor.

**5. HIGHER RESISTANCE TO ABRASION!** Proved by tests made on a Taber Abrader.

**6. GREATER STRENGTH THROUGHOUT TILE!** Provided by the higher molecular weight resins. Result: less chance of breakage and broken corners.

**7. INCREASED ALKALI RESISTANCE!** Particularly important for on-or-below grade installation over concrete.

**8. SCRIBES EASIER!** H.M.W. Tile saves time in cutting border tile.

**9. ECONOMICAL!** H.M.W. costs no more than ordinary asphalt tile.

That's the story! A story that promises a happy ending for you, too. In better-looking longer-wearing flooring installations.

Get complete information on the Tile-Tex H.M.W. Tile from your Tile-Tex contractor today. Or write:

Sweet's

**THE TILE-TEX DIVISION, THE FLINTKOTE COMPANY,**
**1234 McKinley Avenue, Chicago Heights, Illinois.**

*In the 11 Western states:* Pioneer Division, The Flintkote Company, P.O. Box 2218, Terminal Annex, Los Angeles, California.

*In Canada:* The Flintkote Company of Canada, Ltd., 30th Street, Long Branch, Toronto.

# TILE-TEX . . . *Floors of Lasting Beauty*

Manufacturers of Flexachrome*. . . Tile-Tex*. . . Vitachrome* . . . Holiday*. . . Mura-Tex*. . . Korkolor† . . . Holiday Flexachrome*. . . and Modnar*, the plank-shaped asphalt tile.

*Reg. U. S. Pat. Off. †Trademark of The Flintkote Company

## FOR SPLINTER-PROOF FLOORING OF UNEQUALLED BEAUTY AND UTILITY, SPECIFY *Kreolite!*

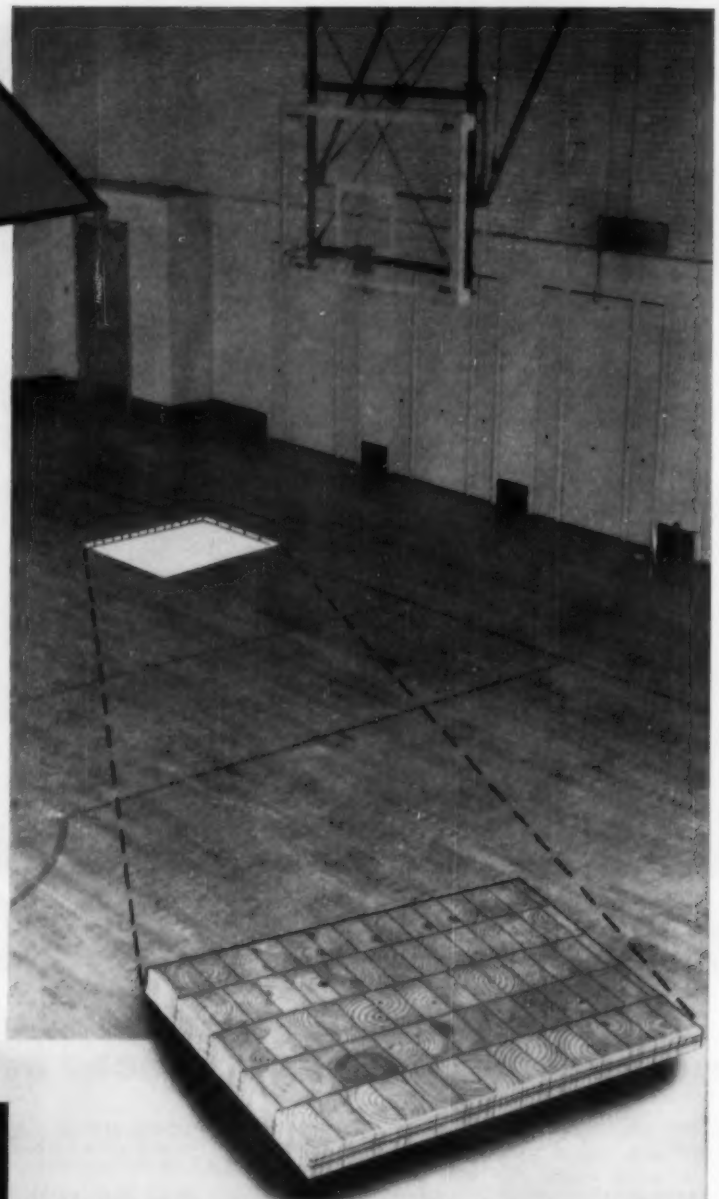
No need to worry any longer about costly flooring materials for those school areas where floors take a beating. The answer—Kreolite Flexible Strip End Grain Wood Block Flooring!

Kreolite Flooring is more economical to install than other types of gymnasium, vocational shop and laboratory flooring—and it is unequalled for beauty and utility . . . beauty and utility that come from Kreolite's selection of natural finish woods and famous end grain construction.

What's more, Kreolite Flooring is resilient, splinter-proof and cheaper—easier to maintain, too!

So, if you're looking for school flooring that's low in cost—yet beautiful and durable, *make sure it's Kreolite!* See for yourself the advantages of this fine flooring material. Mail the coupon below *today!*

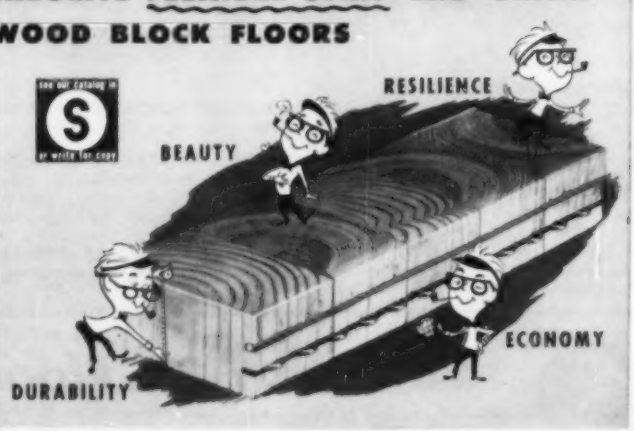
*Ascension Elementary School Gymnasium, Oak Park, Ill.*
*Architect, McCarthy & Smith*



**The Jennison-Wright Corp.**
**2463 Broadway**
**Toledo 9, Ohio**

**KREOLITE FLEXIBLE STRIP END GRAIN WOOD BLOCK FLOORS**

See our catalog in S or write for copy




Please send me a free sample and complete specifications of Kreolite Flexible Strip End Grain Wood Block Flooring.

Name_____

Address_____

City_____ State_____

AR

# STUDENTS STUDY SAFELY... UNDER GOLD BOND "FIREFIGHTER" ROOF DECK

**Daingerfield School,** Daingerfield, Texas; *Architect:* Stanley Brown, A.I.A., Dallas, Texas; *General Contractor,* Vaughn Bros. Construction Co., Naples, Texas; *Roof Deck Contractor:* Lydick Roofing Co., Ft. Worth, Texas.

When the Daingerfield, Texas, School District built its new Junior and Senior High School, they built well—and safely.

Here's the new building, a $643,705.90 project serving 700 pupils in an area of 109.41 square miles. They kept costs low here—with no sacrifice of fire safety—by using Gold Bond "Firefighter" Gypsum Roof Deck poured over Gold Bond Econacoustic Formboard and Gold Bond Gypsum Formboard.

The Daingerfield job used 89,347 square feet of Formboard and 356 tons of Metro Mix "Firefighter" Roof Deck to build a combination exterior roof and interior ceiling that sound conditions, insulates and reflects light throughout the school—and protects against fire spread, too! Incombustible gypsum can't transmit high temperatures or warp when exposed to hot flame.

As much as 30,000 square feet of "Firefighter" Roof Deck can be poured in one day! Quick setting action lets workmen walk on deck within 15 minutes...allows deck to take full load capacity in less than one hour! Low dead load permits lighter supporting structures—saves in construction costs. Adaptable to pitched, barreled or flat roof design. For complete details on safe, economical "Firefighter" Roof Decks, mail this coupon today. National Gypsum Company, Buffalo 2, N.Y.

Gold Bond
BUILDING PRODUCTS

**"FIREFIGHTER" GYPSUM ROOF DECK**

NATIONAL GYPSUM COMPANY

NATIONAL GYPSUM COMPANY, Dept. AR-126

Gentlemen: Send me Technical Bulletin No. 589 with complete details on "Firefighter" Roof Decks.

*Name* *Address*

*City* *County* *Zone* *State*

No explosive charges or special precautions needed! Safe once it's installed, too. Every RED HEAD concrete fastener drills its own way into the toughest concrete in seconds. And it's there as long as the concrete itself. Can't pull out, rust out, melt out or shake loose because of full dovetail expansion. Costs less installed than any other type concrete fastener. Write today for catalog and free sample... Demonstration at job site can be arranged.

PHILLIPS®
RED HEAD
CONCRETE FASTENERS
the original since 1916
PHILLIPS DRILL COMPANY, MICHIGAN CITY 3, INDIANA

## REQUIRED READING

*(Continued from page 58)*

are seeking a valid architectural demonstration of the meeting of man and God in our day, this book will be both a comfort and a goad.

Mr. Mill's chapters on Planning Considerations, Acoustics, Practical Considerations, Materials, Furnishings and Religious Arts and Building Costs are survey in character and yet detailed enough to be of real help to the architect and of practical guidance to the layman as he attempts to evaluate specifications that would normally be beyond his understanding. Cost estimates must be read with the reminder that this part of the book is written for English consumption rather than American. The three appendices covering Church Planning Data, Ancillary Accommodations, and Officers of Church Authorities dealing with new buildings are a unique feature of this book in their glossary form, and should be of great help to the reader. Their definitions and practical dimensions will reduce research to a minimum and will enable the architect to distinguish between the needs of the various Christian denominations and churches. The "Officers of Church Authorities dealing with new buildings" chapter is useless for America, but is a good idea. With the exception of the historical section, the bibliography is sufficient. I regret the absence in this section of *The Architectural Setting of Anglican Worship* by Addleshaw and Echells, Faber and Faber, London, 1928.

*The Modern Church* will do credit to any architectural library and cannot be recommended too strongly to those architects, clergymen, and members of boards and vestries who are faced with the possibility of building or rebuilding a Church. And who isn't?

### A SUMMING UP

*The Architects Yearbook* 7. Edited by Trevor Dannatt. Philosophical Library Inc. (N. Y.) 1956. 220 pp. Illus. $10

The 1956 version of *The Architect's Yearbook* includes a philosophical article by Sir Herbert Read, a piece by Gordon R. Taylor on "Psychology, The Architect and Patron," discussions of the topic of Habitat, and critical articles on the works of some of the leading contemporary architects. A design section, technical section, and section on new buildings in Great Britain complete the book.

*(More reviews on page 328)*

# Weldwood News *for* Architects

UNITED STATES PLYWOOD CORPORATION

## COLORFUL, PORCELAIN-FACED BUILDING PANELS OFFER NEW DESIGN OPPORTUNITIES

This bright store front will stay bright easily. Colors won't fade; limited maintenance required.

**Weldwood Porc-Lin-Ply is weatherproof, easy to install**

Here's a building panel that combines the beauty and durability of a porcelain-on-steel face with the moisture resistance of waterproof plywood. The name is Porc-Lin-Ply®. And it's not only beautiful and durable, but it's easy and inexpensive to install, too.

Porc-Lin-Ply's face is Architectural Porcelain Enameled Steel. It resists scratching, denting, marring, chipping and fading. Won't peel, crack or stain. It comes in black, white, and 7 standard colors.

The core of Porc-Lin-Ply is Weldwood exterior plywood, and that is backed up with rust-resistant metal for maximum stability. These extremely flat panels can be cut with ordinary power saws, and can be easily and inexpensively installed with special Weldwood extruded aluminum moldings.

Porc-Lin-Ply is finding wide use as fascias for exteriors of commercial buildings such as stores, gas stations and theaters, and for soffits, shower stalls, walls, ceilings and countertops. Every Porc-Lin-Ply panel, when properly installed, carries a complete guarantee against defective material and workmanship. Sizes: 36″ x 96″; thickness is 5/16″. Panel weight: 1.75 lbs. per square foot.

## 3 Good Reasons for Specifying Pine Plywood for Built-Ins

Today, more and more architects are specifying pine plywood for built-ins and cabinets. And with good reason, too.

First, for appearance! Weldwood California Pine Plywood has ideal painting qualities—no discoloration, less checking, less grain lift, and less paint needed to cover. That means a better looking product. Next, Weldwood California Pine Plywood is *all* pine, so it's easier to work, produces less edge-splintering. And Weldwood Pine has greater stability because of the lower moisture content during manufacture. Furthermore, it's made with exclusive, mold-resistant L-1R glue.

Weldwood California Pine is actually lower in cost than panels with equivalent paintability. And the superior finished product insures complete satisfaction for you, for the builder, and for the home buyer.

## Overlaid Lap Siding Cuts Building Time and Costs

Workman installs special aluminum corners on Duraply-built home. Corners save construction time, cost only pennies—are available from United States Plywood branches.

Keeping siding costs down and quality up is the job for lap-cut Duraply®—the plywood with a special medium density fused overlay.

This permanent surface (phenolic resins and cellulose fibers) needs less paint than ordinary wood surfaces; is weatherproof. And Duraply lap-cut siding comes in big widths up to 16″ (96″ length) so less courses are needed to close in a house. Furring strips are preattached to bottom edge, and back-up wedges are included in every carton of 10 pieces. Duraply is EASY to work with ordinary power tools. Painted Duraply resists serious checking, won't develop paint blisters, no matter how severe the weather.

**Architects' Service Dept.**

**United States Plywood Corporation** AR12-56
**55 West 44th St., New York 36, N. Y.**

Gentlemen: Please send me the following:

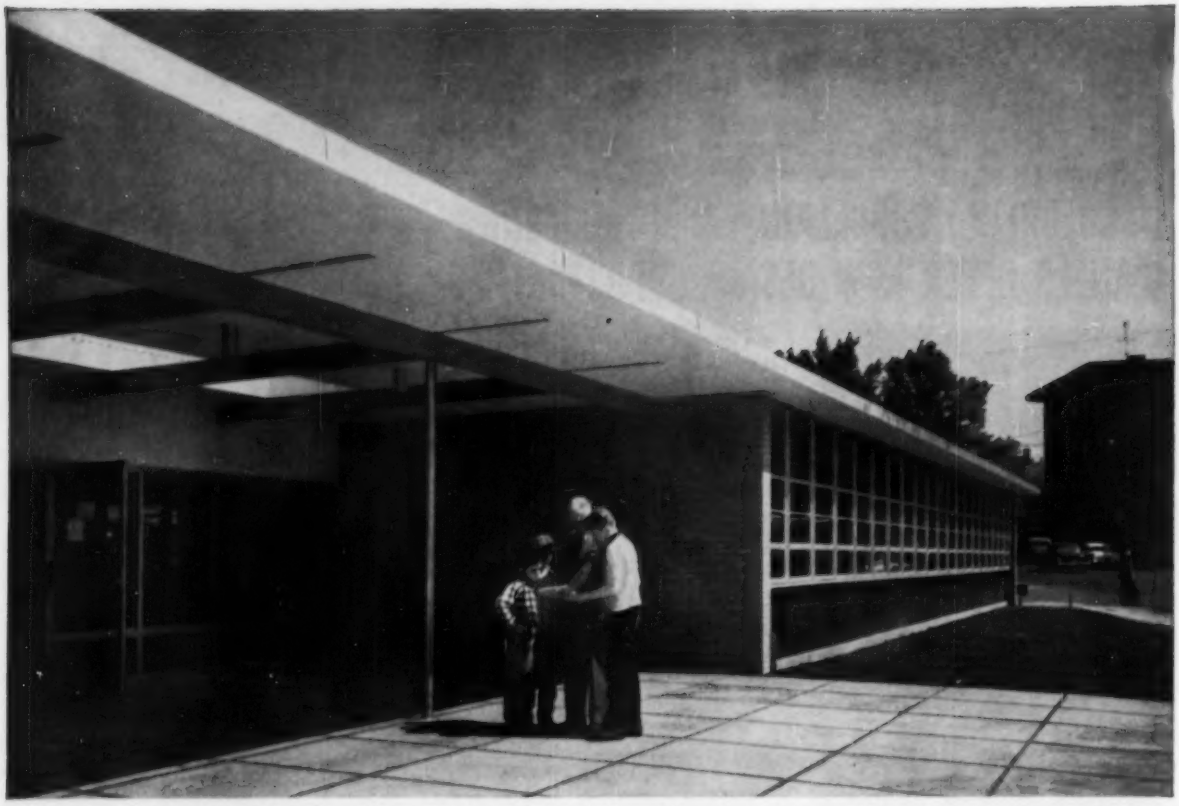
☐ #1469—Weldwood Porc-Lin-Ply ☐ Sample of Weldwood Pine Plywood
☐ #1413—Weldwood Duraply ☐ #1457—Weldwood Catalog (48 pages)
☐ Please have Architects' Service Representative call.

NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....



Albany Boys' Club was designed by office of Henry L. Blatner, architect, of Albany. General contractor was McKenna Construction Co., also of Albany.

# BOYS' CLUB IN DOWNTOWN ALBANY BUILT ECONOMICALLY WITH STEEL JOISTS

Because the two buildings used by the Boys' Club of Albany, N. Y., were more than fifty years old, it was decided to replace them with two new ones, both to be located in the congested city areas which they serve. The first of these new buildings has now been completed: a highly functional, but economically constructed, one-story clubhouse designed to fit the available site.

The new building contains a large gymnasium, crafts and hobby rooms, shower and locker facilities and a library. Of steel-frame and face-brick construction, it was built at minimum construction cost.

One factor in the low construction cost was the use of Bethlehem Open-Web Steel Joists. The joists arrived at the job site fully fabricated, ready for instant placing without interrupting construction schedules. Installation of piping and wiring was simplified because conduits and ducts could be run in any direction, through the open webs. Steel joists contribute to the rigid, permanent construction of the building, a factor which will hold future maintenance to a minimum. Used in combination with poured ceiling and concrete floor slabs, the steel joists also contributed to fire-safety.

Bethlehem Longspan Joists span the gymnasium, giving uninterrupted, column-free space below.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
*Export Distributor:* Bethlehem Steel Export Corporation

**BETHLEHEM OPEN-WEB STEEL JOISTS**

BETHLEHEM STEEL

## new luminaire . . .

## with light-control lens of Plexiglas

Molded of PLEXIGLAS® acrylic plastic, the prismatic enclosure of this recently introduced fluorescent luminaire contributes many basic design advantages:

**Light Weight and Strength** make possible a simplified design notable for the absence of heavy metal framing . . . resulting in slim, compact, architecturally harmonious appearance. The entire lens section is hinged, can be swung down for easy relamping and cleaning.

**Shatter Resistance** makes the luminaire especially suitable for locations where safety is a prime requisite.

**Precise Moldability** to the lens pattern results in an efficient optical element that provides a high level of downward light and, at the same time, complete visual comfort.

**Dimensional Stability and Freedom from Discoloration** insure long term efficiency, beauty and economy.

Write today for the names of manufacturers of fluorescent luminaires featuring molded PLEXIGLAS enclosures.

*Chemicals for Industry*

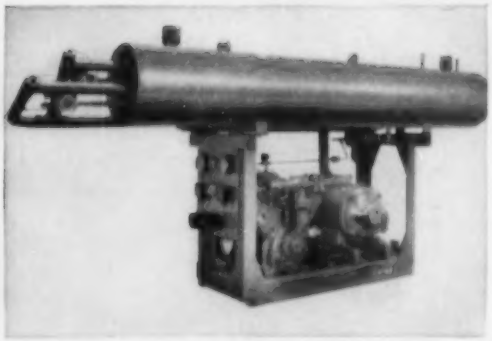
**ROHM & HAAS COMPANY**

**WASHINGTON SQUARE, PHILADELPHIA 5, PA.**

*Representatives in principal foreign countries*

**Canadian Distributor:** *Crystal Glass & Plastics, Ltd., 150 Queen's Quay at Jarvis Street, Toronto, Canada.*

# Florida motel orders "seconds" on Worthington air conditioning



**Low-cost operation** of Worthington packaged liquid chillers stems from exact matching of capacity control to load requirement. Easy installation, long life and wide selection are other key features.

Providing an attractive climate indoors and out has paid off so well for the Azure Tides Motel that they're adding a second building.

The cool, comfortable indoor climate is provided by Worthington's 25-ton packaged chiller (at left) and 15-ton condensing unit. So sold on Worthington air conditioning are the Azure Tides people that the new structure will be cooled by a second Worthington central system consisting of a 25-ton package chiller and a 15-ton condensing unit.

Located on Sarasota's Lido Beach, this handsome two-story motel owes its growing popularity to a choice location, modern comfortable appointments and service geared to the guests' convenience.

Both the original 50-unit building (above) and the 38-unit addition (three-story construction with elevator, modern restaurant and cocktail lounge) were blueprinted by Designer Frank C. Martin and built by General Contractor Charles Ongheri of Sarasota.

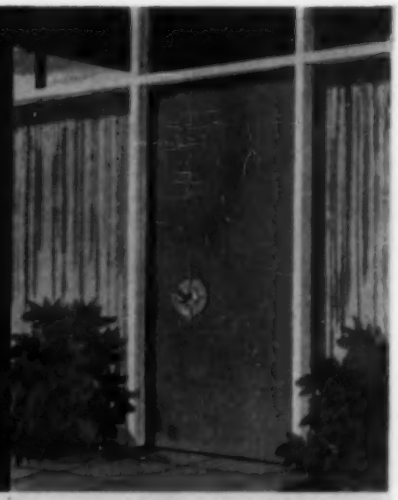
For information on air conditioning units to meet your residential, business or industrial needs, call your local Worthington distributor. Or write for Bulletin WP-1099 B48 to Worthington Corporation, Air Conditioning and Refrigeration Division, Section A.6.70-R, Harrison, New Jersey. A.6.70

**WORTHINGTON**

*CLIMATE ENGINEERS TO INDUSTRY, BUSINESS AND THE HOME*

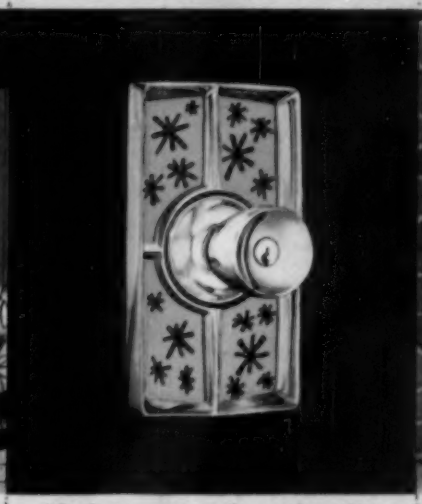
A tasteful focal point for the traditional entranceway —Continental on horizontal with 18" backset.

**Continental escutcheon (11" x 8") shown with Saturn design lock. Color background is paint.**



The modern exterior subtly complemented by a vertical Continental with 10" backset.

Functional harmony for an unusual doorway. Horizontal Manhattan with special backset.



**Manhattan escutcheon (8" x 4½") shown with Tulip design lock. Color background is vinyl plastic.**

Colorful double door motif for the dramatic entrance – twin vertical Manhattans with 7" backsets.

## "Color-Accent" LOCK STYLINGS—A NEW ENTRANCEWAY DECOR

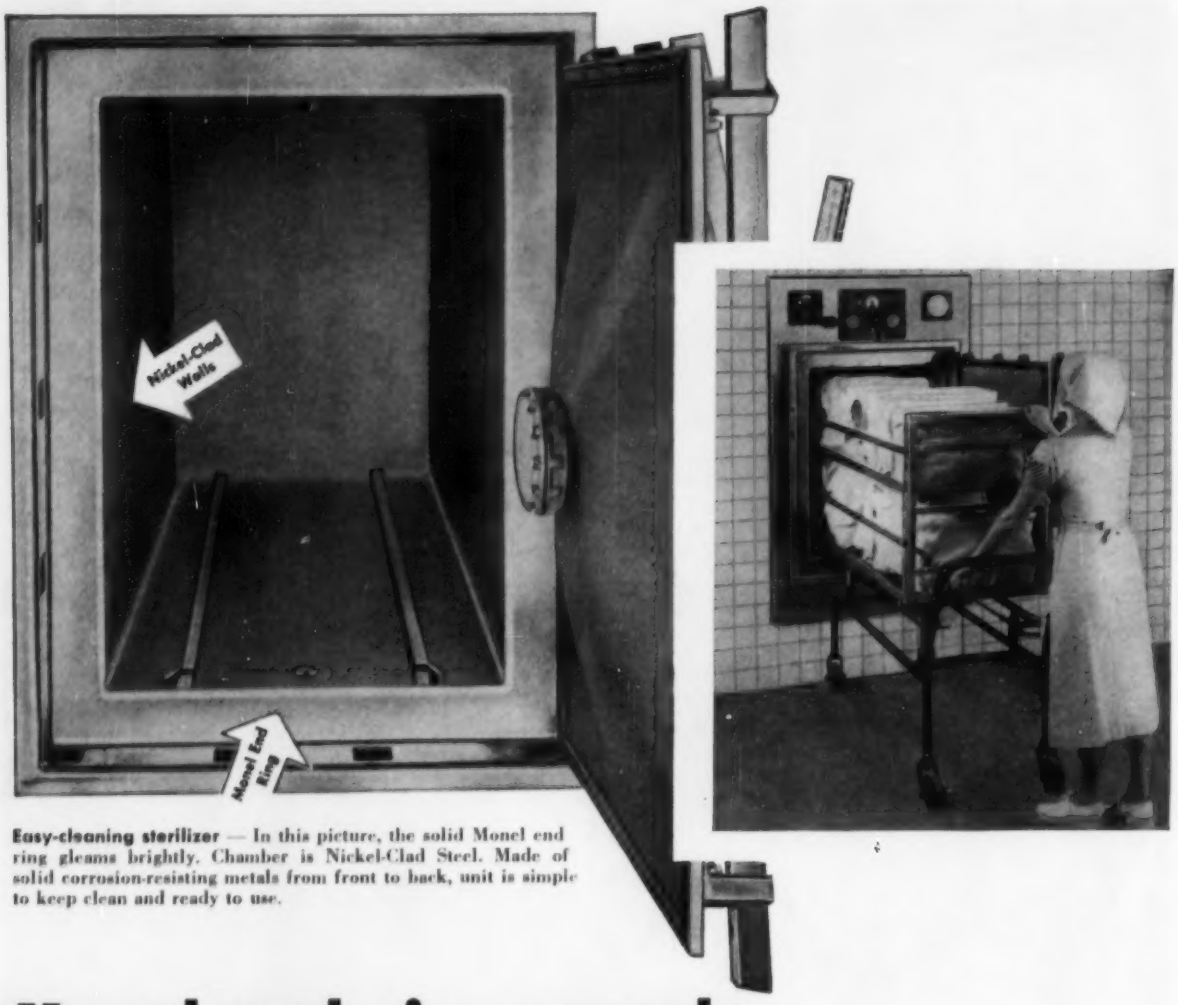
To the architect, Schlage's open-back "Color-Accent" lock escutcheons offer opportunities for integrated doorway designs that have never existed before. Behind the open-back of the circular Continental or the rectangular Manhattan, the variety of colors and textures that can be introduced are numberless . . . the design applications which they can serve are as limitless as the architect's creative originality.

**Send for New "Lock Fashions" Brochure #651 A-12**
For colorfully illustrated applications of the new "Color-Accent" concept and complete information on Schlage residential lock and escutcheon designs, write today for this 4-color, 12-page brochure.

SCHLAGE

*Address all correspondence to San Francisco*

SCHLAGE LOCK COMPANY • SAN FRANCISCO • NEW YORK • VANCOUVER, B. C.




**Easy-cleaning sterilizer** — In this picture, the solid Monel end ring gleams brightly. Chamber is Nickel-Clad Steel. Made of solid corrosion-resisting metals from front to back, unit is simple to keep clean and ready to use.

# Monel end ring guards American's new bulk sterilizer...

## Teams up with Nickel-Clad chamber for complete protection against corrosion

If there's one place on a sterilizer that really takes a beating, it's the end ring.

Loading racks and trays jar it. The door closes on it. Locking arms press against it. It endures heat, pressure, corrosive attack.

But this is American Sterilizer Company's new M. E. sterilizer. That means the end ring is Monel* nickel-copper alloy. So it is hard and tough. It stays bright and attractive. Looks as efficient as it is.

### Sterilizer sealed against corrosion

American welds the long-wearing Monel end ring to a sterilizing chamber of Lukens Nickel-Clad Steel. Both metals are outstanding for resistance to corrosion by steam, saline and other hospital solutions.

### Less work for the staff

These sterilizers are easy to clean. Soap and water or common abrasive cleaning powders keep these sturdy metals bright.

**Want more information?** Write American Sterilizer Company, Dept. 7-12N, Erie, Pa. They'll gladly send you the catalogue of their new M. E. Series sterilizers.

*Registered trademark

**The International Nickel Company, Inc.**
67 Wall Street New York 5, N. Y.

INCO Nickel Alloys

## Nickel-Clad and Monel sterilizers... long life, easy to care for

**PUBLIC SCHOOL NO. 38**
MIDLAND BEACH, STATEN ISLAND, N. Y.
**Michael L. Radoslovich** — *Architect*
**Carrannante and Illiano Constr. Co.** — *Masonry Contractor*
**Mars Construction Co.** — *Gen. Contractors*
Spandrels, column facing at entrance, kindergarten and playroom are Architectural Terra Cotta units 24" x 36".

# Colorful new look for the old red schoolhouse!

Plenty of sunlight and sunshine colors make youngsters forget classroom confinement. This is why architects designing today's smart functional schools specify Architectural Terra Cotta. It permits you to choose almost any color under the sun—for exteriors and such diversified interiors as corridors, classrooms, vestibules, and swimming pools. For plain surfaces or decorative panels, individual units can be large or small. The ceramic-glazed surface of Architectural Terra Cotta withstands the test of time and traffic, while assuring minimum maintenance. Even where big-city grime exists, utmost cleanliness can be maintained by simple soap-and-water washings. This is all that is needed to retain original richness and beauty indefinitely. Whatever the budgets of the schools on your boards, consider the advantages of Architectural Terra Cotta. For latest data, write today.

*Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge on Architectural Terra Cotta and Ceramic Veneer.*

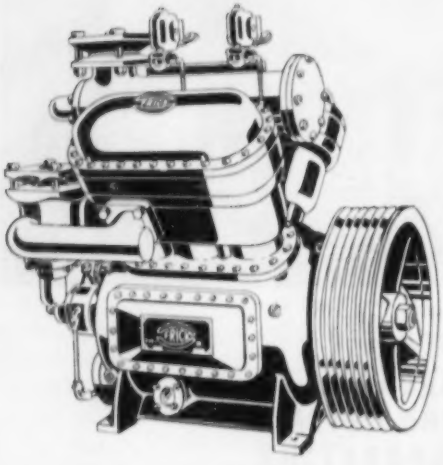
**FEDERAL SEABOARD TERRA COTTA CORPORATION**
10 East 40th Street, New York 16, N. Y.
PLANT AT PERTH AMBOY, NEW JERSEY

F S T C

TRADE FRICK MARK®

# Air Conditioning

## Serves Throughout this Unique Hotel



*Nine Frick "ECLIPSE" Compressors Air-Condition the Claypool Hotel at Indianapolis*

Famed as the first COMPLETELY air-conditioned large hotel north of the Mason-Dixon Line, the Claypool at Indianapolis selected Frick equipment because it had used Frick Refrigeration for food service since 1939.

Nine Frick "ECLIPSE" compressors, installed by Decker and Roberts of Forth Worth, carry the air conditioning load, which is divided into three systems.

You get the utmost in air conditioning, ice making, quick freezing and cooling services when you specify "Frick." Let us quote now on your commercial or industrial cooling needs.

DEPENDABLE REFRIGERATION SINCE 1882

FRICK CO.

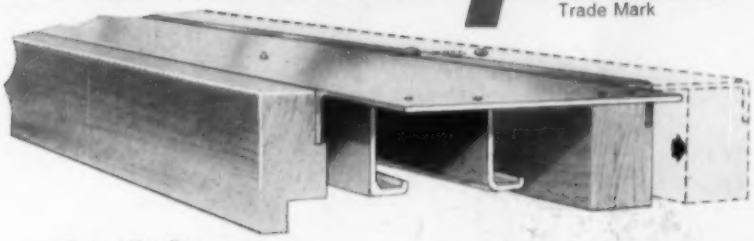
WAYNESBORO, PENNA. U.S.A.

# NEW WARDROBE HEADER

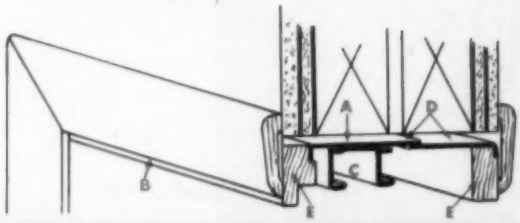
## *Cuts Costs • Saves Labor • Adds Beauty*

# Series 1900 Kenna-pak

Trade Mark



**Patent Pending**




*One piece header and hardware for wardrobes using ¾" and 1⅜" sliding doors*

**A** Steel header takes minimum headroom—eliminates fascia and cutting of doors—standardizes all door opening heights.

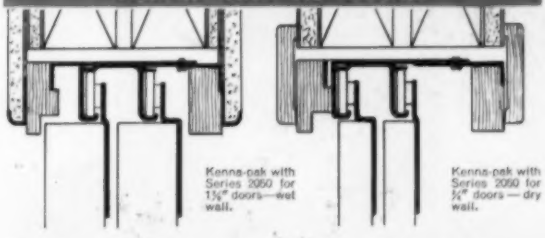
**B** Allows normal 3/16" reveal.

**C** Scottie 2050 hardware factory installed for 1⅜" doors. Adjustable for ¾".

**D** Adjustable to wall thickness: 4½"—5¾".

**E** Front and rear nailing strips take any standard trim of your choice.

**FOR ALL WALL MATERIALS 4½" — 5¾"**
**FOR ¾" AND 1⅜" DOORS**



Kenna-pak with Series 2050 for 1⅜" doors—wet wall.

Kenna-pak with Series 2050 for ¾" doors — dry wall.

**Kenna-pak, prefabricated adjustable wardrobe header assembly, is complete with steel header, Scottie Series 2050 sliding door hardware and wood nailing strips for wardrobes using ¾" and 1⅜" sliding doors. Completely packaged, Kenna-pak cuts labor and installation costs while adding to the beauty of sliding door wardrobe installations.**

### CUTS COSTS — SAVES LABOR

**Parts vs. Pieces**
Kenna-pak means that you work with one prefabricated piece rather than many parts, which require costly on-the-job milling and assembly.

**One Man Job**
Kenna-pak header unit is easily assembled to side jambs. One man can set unit in rough opening and finish job.

**Uniform Openings**
Kenna-pak means one height from finished floor for all standard openings. Eliminates costly construction of special openings. Kenna-pak is installed directly to the side jambs. No head jamb required.

**Eliminates Door Cutting**
Buy doors 6'8"... use doors 6'8". Kenna-pak minimum headroom allows full use of standard 6'8" doors.

### ADDS TO BEAUTY OF INSTALLATION

**Eliminates Fascia**
Kenna-pak is the long sought for answer to the fascia problem. The trim of your choice is nailed directly to Kenna-pak wood nailers. Leaves a normal ⅛" reveal to harmonize with other openings. Hardware is completely concealed even before the trim is applied.

**Same Trim Height**
With Kenna-pak, wardrobe height matches passage doors. Same trim height inside and outside wardrobe.

**KennatracK®**
**CORPORATION**
A SUBSIDIARY OF EKCO PRODUCTS COMPANY
**ELKHART, INDIANA**
*In Canada: Kennatrack Corp., (Canada) Ltd., 417A Birchmount Rd., Toronto*

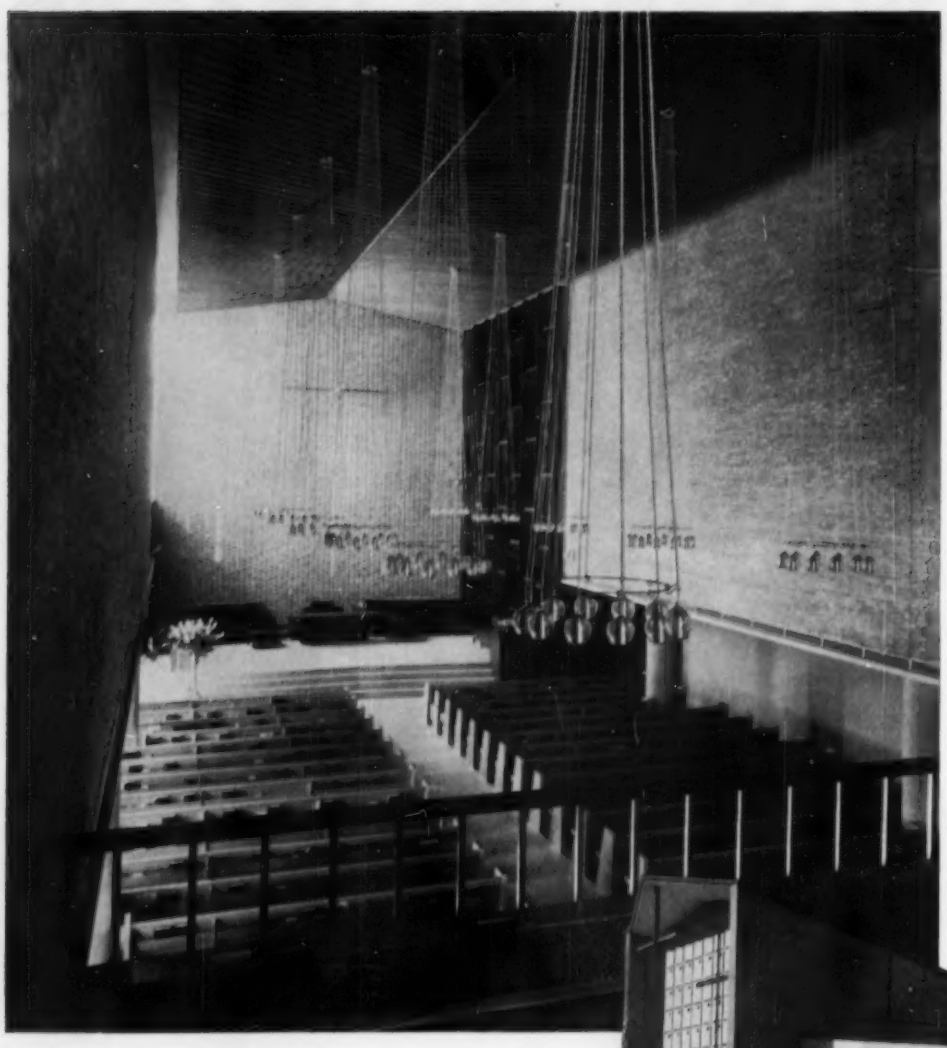
Kenna-pak steel header takes minimum headroom. Eliminates fascia and cutting of doors—standardizes all door opening heights.

Adjustable Kenna-pak is nailed flush with side jambs.

One man raises Kenna-pak and jambs into place.

With Scottie Series 2050 hardware set to doors a neat installation is completed.

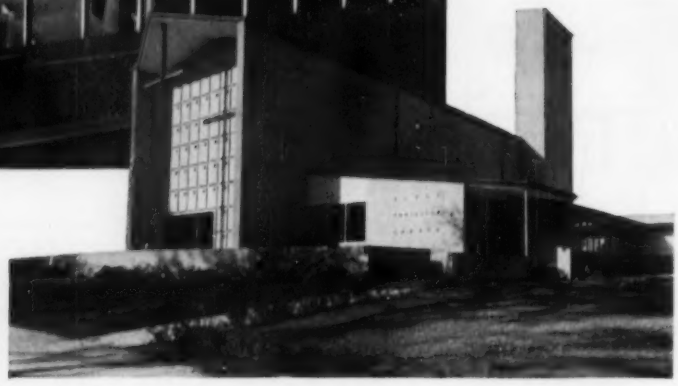
● **SERIES 1900 for standard jambs.**
**SERIES 1950 for adjustable jambs.**



Architect:
THERSHOV & CERNY, INC.
Minneapolis, Minn.

Contractor:
DEAN L. WITCHER, INC.
Minneapolis, Minn.

Dealer:
SWANSON BROS. CO.
Minneapolis, Minn.



## "all concerned are pleased . . ."

"My firm has become a consistent user of Lehigh Mortar Cement in recent years" reports Mr. Dean L. Witcher, general contractor for the new First Christian Church in Minneapolis, Minnesota. And here are his reasons:

"Masonry Foreman Axel Lindborg is high in his praise of your product. He is especially proud of the workability of Lehigh Mortar, which in turn improves our efficiency by increasing production on the wall.

"Architects and owners with whom we have worked have remarked at the fine appearance of our masonry walls.

"We have found Lehigh Mortar to be equally suitable for both summer and winter construction. It is economical to use and *all concerned are pleased* with the completed jobs."

This is the kind of satisfaction Lehigh Mortar Cement is giving on countless jobs all over America. You can approve its use with the assurance that it exceeds the requirements of the most rigid Federal and ASTM Specifications.

• LEHIGH MORTAR CEMENT • LEHIGH PORTLAND CEMENT
• LEHIGH EARLY STRENGTH CEMENT • LEHIGH AIR-ENTRAINING CEMENT

**LEHIGH PORTLAND CEMENT COMPANY**
ALLENTOWN, PA.

# Socony Mobil Selected Corbin Door Hardware!

In New York's mammoth 45-story Socony Mobil Building, the offices of the Socony Mobil Oil Company occupying 22 full floors and space in the building's concourse are completely equipped with Corbin Hardware . . . Corbin Unit Locks, Corbin Master Keying, Corbin Door Closers and other Corbin Finishing Hardware.

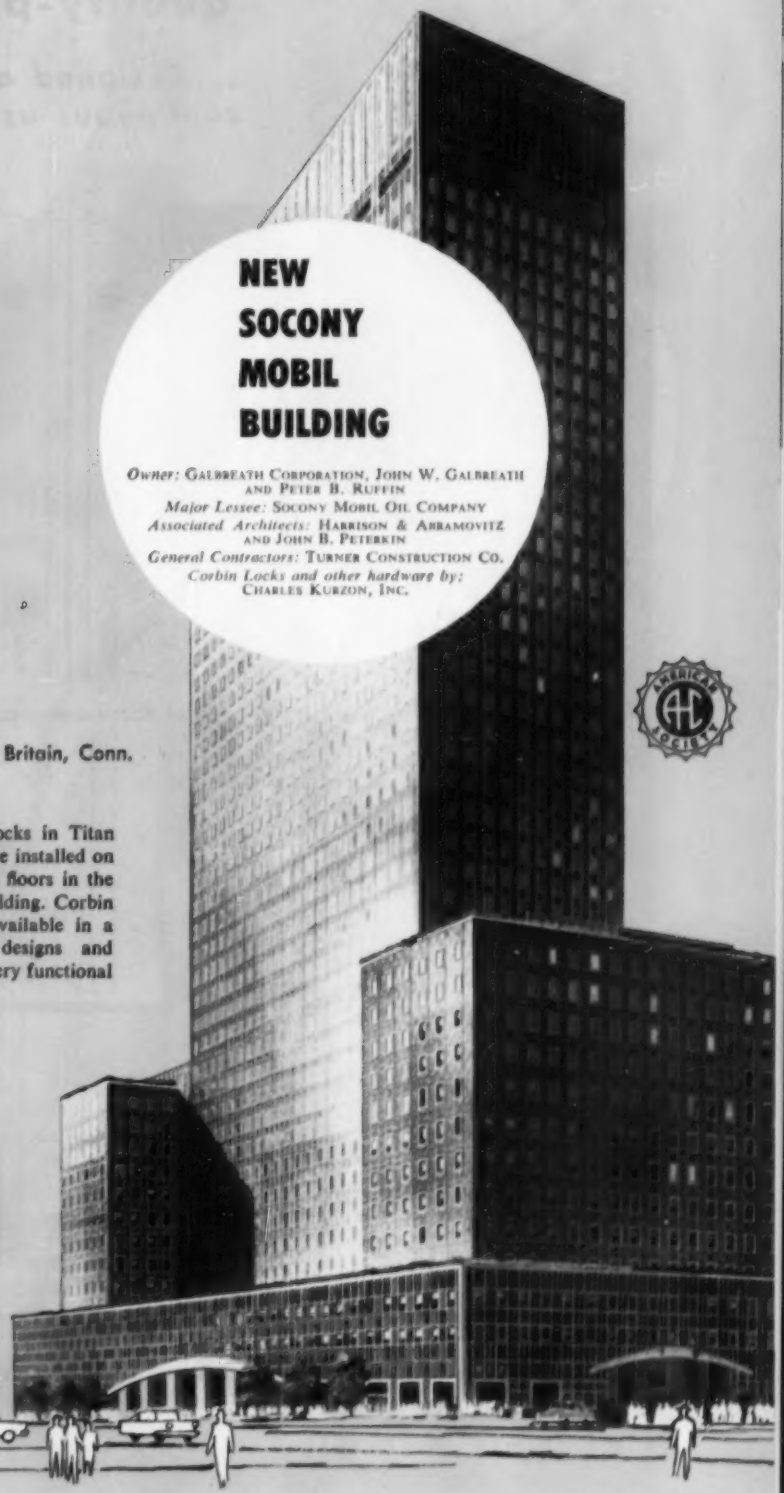
This is a typical example of the Corbin preference held by architects, contractors, building owners, and tenants who have had experience with the superb design, ease of installation, and trouble-free performance of Corbin Unit Locks and Finishing Hardware. It explains why Corbin is specified for more and more of the world's outstanding new large buildings. Specify this finer hardware for *your* new office and institutional buildings . . . consult your dealer for selections from Corbin's complete line.

**NEW SOCONY MOBIL BUILDING**

*Owner:* Galbreath Corporation, John W. Galbreath and Peter B. Ruffin
*Major Lessee:* Socony Mobil Oil Company
*Associated Architects:* Harrison & Abramovitz and John B. Peterkin
*General Contractors:* Turner Construction Co.
*Corbin Locks and other hardware by:* Charles Kurzon, Inc.

**P & F CORBIN** Division
The American Hardware Corporation, New Britain, Conn.

These exclusive locks in Titan Design No. 904 are installed on 22 of the total 45 floors in the Socony Mobil Building. Corbin Unit Locks are available in a wide range of designs and finishes to meet every functional requirement.



CORBIN **HEAVY DUTY UNIT LOCKS**

The Locks that come Practically Pre-Installed

# solve your interior door control problems with GLYNN·JOHNSON quality-proven hardware

*...designed and built for the hard, continuous usage of public buildings*

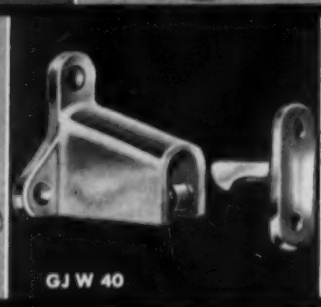
**suggestion no. 1:**

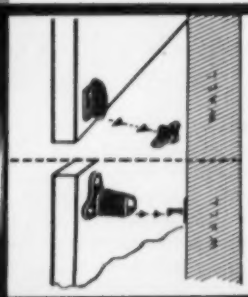
***Foot operated door holders with TAMPER PROOF concave knob bumper***

**GJ 1153 (aluminum) and GJ 1154 (bronze or brass) plunger action door holders.** Contact and spring release by foot. Exceptionally durable. Available in all finishes. "Sure hold" rubber shoe.

**GJ 4 lever action door holder.** Highest quality bronze in various sizes and finishes. For lower budgets, GJ 44 and GJ 444. All have "sure hold" rubber shoe.

**GJ WB 60 concave knob bumper.** Cannot be removed by unauthorized persons. Truly TAMPER PROOF. For wood screw, machine screw or expansion shield mounting. Quality bronze, brass or aluminum.

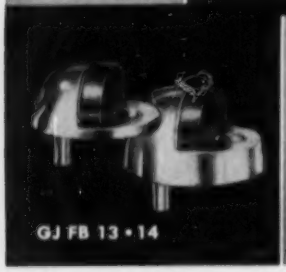


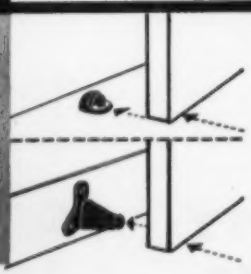



**suggestion no. 2:**

***Combination bumper and automatic door holder***

**GJ F 40 (floor installed) or GJ W 40 (wall installed).** Holders and bumpers with push-pull hold and release. Fool proof. Engage on contact, release by firm pull. Contour prevents any "standing" on holder. Quality bronze, brass or aluminum.





**suggestion no. 3:**

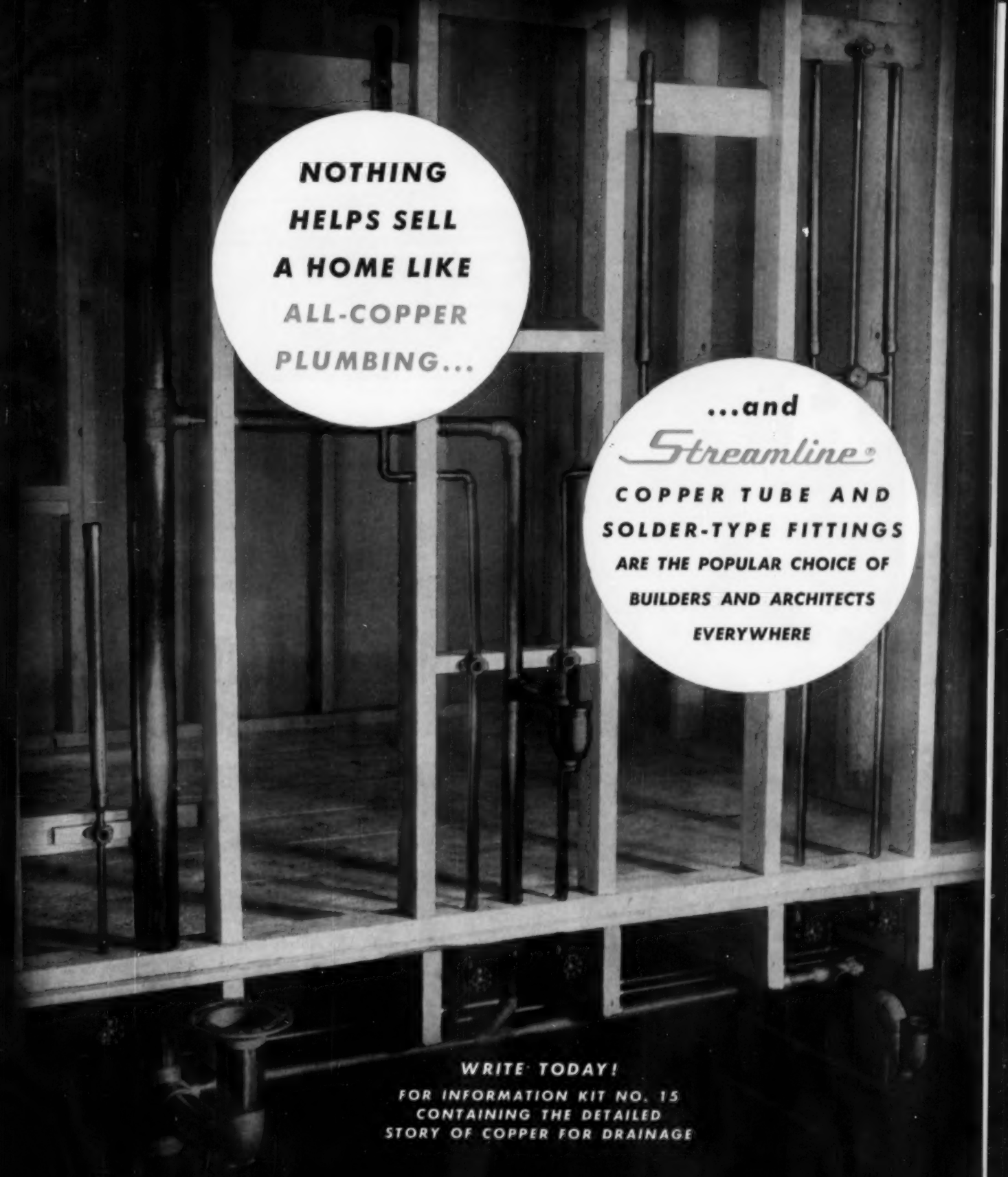
***Door bumper only***

**GJ FB 13 floor installed dome type.** Used to stop doors before reaching wall. Shallow, rounded top. GJ FB 14 for doors passing over thresholds.

**GJ WB 35 extended wall type bumper with sloping top.** Installed to meet top or bottom of door. Quality bronze, brass or aluminum.

***When you specify GJ you specify quality***

**GLYNN•JOHNSON CORPORATION**
4422 n. ravenswood ave. • chicago 40, illinois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HELPS SELL
A HOME LIKE
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ARE THE POPULAR CHOICE OF
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EVERYWHERE
WRITE TODAY!
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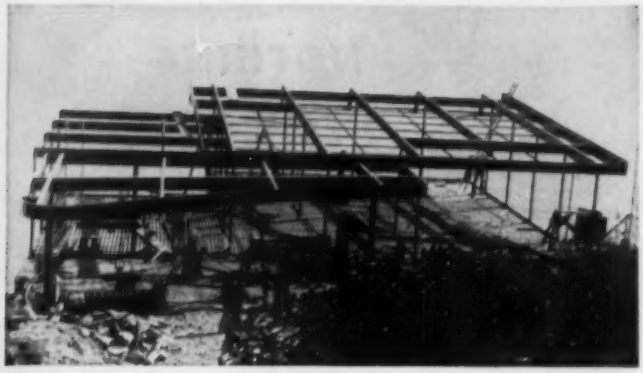
When a welded frame building has more useable space...

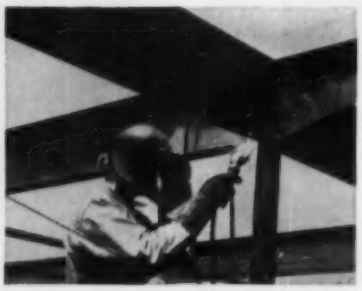
Has far simpler connections...

Yet uses less steel...

# WHY

## don't you design all buildings for welded construction





**Steel frame** *"Moduplan" home before roofing is applied. Note steel "Tees" lacing roof structure at 4-foot intervals between junior I-beams. These "Tees" support ceiling panels and add reinforcement. They are welded directly to the flanges of the I-beam.*

*Field welding vertical pipe stud to junior I-beams. Lower end of pipe stud is anchored in the concrete slab floor.*

*Photos courtesy "Moduplan", Eugene Memmler, Pres.*

# WELDED DESIGN
## provides low-cost construction for modern frame houses

THE advantages of permanent, sturdy steel construction can now be simply applied to residential building at remarkably low cost by arc welding. The rigid steel framework consists of welded steel deck-type roof and welded steel panel supports installed in a manner to facilitate modular construction. Steel studs of pipe are anchored in a concrete floor slab to support the entire weight of the steel roof deck and its covering.

All joints are arc welded with Lincoln welders and Fleetweld 35 electrodes preventing any joint movement or displacement regardless of stresses involved. Modular sections are prefabricated in simple jigs with fast down-hand welding using Jetweld iron-powder type electrodes.

Similar benefits and savings through arc welding can be realized on many types of industrial and commercial construction. Write for Studies in Structural Arc Welding, available to architects and structural engineers.

**THE LINCOLN ELECTRIC COMPANY**

Dept. 2608 • Cleveland 17, Ohio

*The World's Largest Manufacturer of Arc Welding Equipment*

*first choice of hospitals across the country!*

# MATICO TILE FLOORING

**SELECTED FOR THESE IMPORTANT HOSPITAL PROJECTS FROM COAST TO COAST!**

N.Y.U. Bellevue Medical Center, New York, N. Y.
East Bronx General Hospital, The Bronx, N. Y.
Long Island Jewish Hospital, Long Island City, N. Y.
North Shore Hospital, Manhasset, L. I., N. Y.
Hempstead General Hospital, Hempstead, L. I., N. Y.
Veterans' Administration Hospital, East Orange, N. J.
Ft. Devens Army Hospital, Fort Devens, Mass.
Wayne Memorial Hospital, Goldsboro, N. C.
Syracuse Veterans' Hospital, Syracuse, N. Y.
Michael Reese Hospital, Chicago, Ill.
Napa State Hospital, Napa, Calif.
U.C.L.A.—Los Angeles, Calif. Medical Center Cancer Research & Life Science Bldg.
Veterans' Hospital, Sepulveda, Calif.
University of Calif. Medical Center, San Francisco, Calif.

Each year more and more hospitals join the imposing list of institutions that specify MATICO tile flooring.

And for very good reasons! MATICO tile more than meets every rigid requirement of the modern hospital. It is completely sanitary, easy to keep immaculately clean. And years of hard use in hospitals have proved its rugged durability. It is quietly resilient—a prime factor in hospital flooring. But even more important is the economy of MATICO tile flooring. It is low in cost for both installation and maintenance. Add to this its bright color and cheering effect on both patients and staff—and you can readily understand why MATICO is first choice of hospitals across the country!

QUALITY CONTROLLED MATICO PRODUCTS

Guaranteed by Good Housekeeping

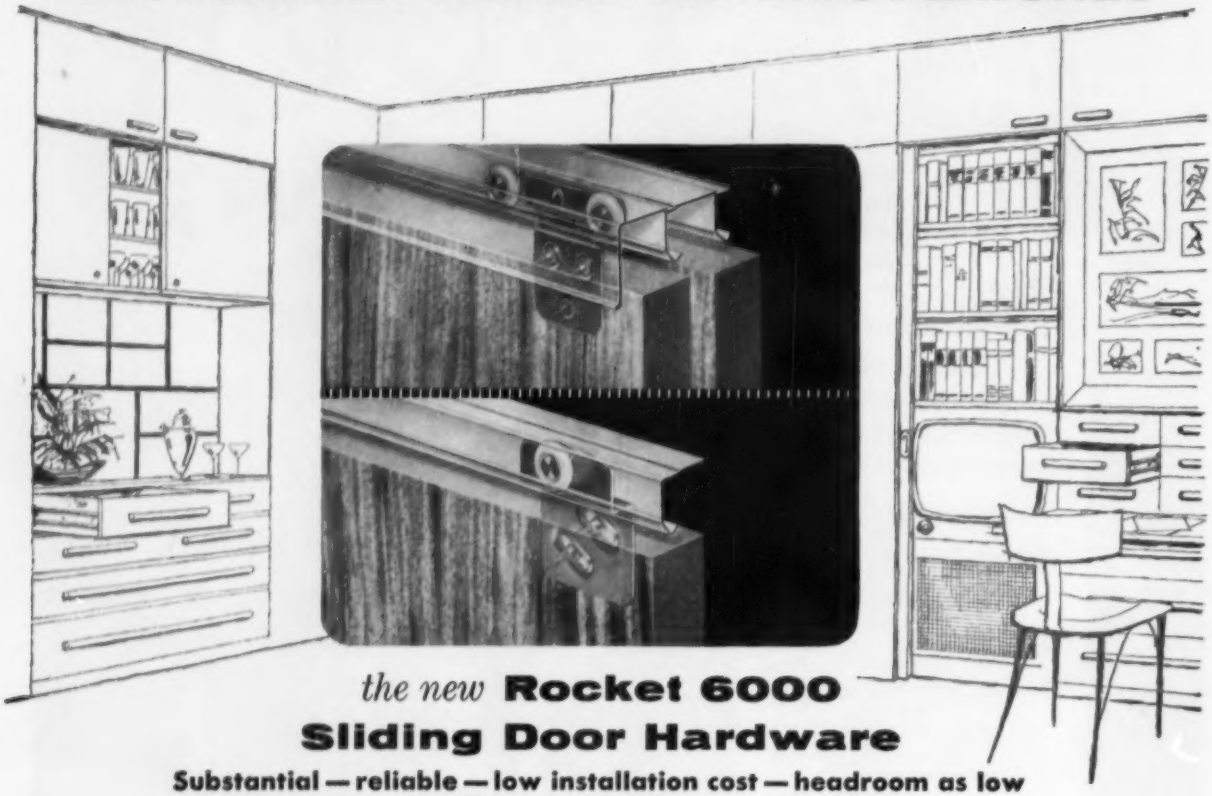
MASTIC TILE CORPORATION OF AMERICA

Houston, Tex. · Joliet, Ill. · Long Beach, Calif. · Newburgh, N. Y.

Rubber Tile · Vinyl Tile · Asphalt Tile · Confetti · Aristoflex
Parquetry · Maticork · Cork Tile · Plastic Wall Tile

# TWO MORE NEW Grant PRODUCTS

## THAT CREATE PROJECT-SELLING FEATURES



*the new* **Rocket 6000**

## Sliding Door Hardware

**Substantial — reliable — low installation cost — headroom as low as 1⅛"—reversible for ¾" or 1⅜" doors**

Grant Rocket 6000 is designed to make available many of the most important features of the finest sliding door hardware at a moderate price range. Specialized engineering staffs and manufacturing facilities have given this popular new line the durable, dependable operating qualities that distinguish all Grant products. The installed cost of Rocket 6000 hardware is the last cost. Rocket 6000 features—both single and double wheel types of carriers—self-lubricating nylon wheels—¼" vertical adjustment without removing attachment screws—carries all standard thickness doors (¾" to 1¾")—track design prevents jumping. Write for detailed specification sheet.

*the new* **Grant 300**

## Drawer Slide

The low installed cost of the 300 slide is within practical range of competitive builders and designers of moderate-cost apartment, commercial and institutional construction. Nylon rollers—smooth, quiet, durable.

Only ½" space required at sides of drawer. Simple stop.

Full data, suggested applications in specification book—ask for a copy.

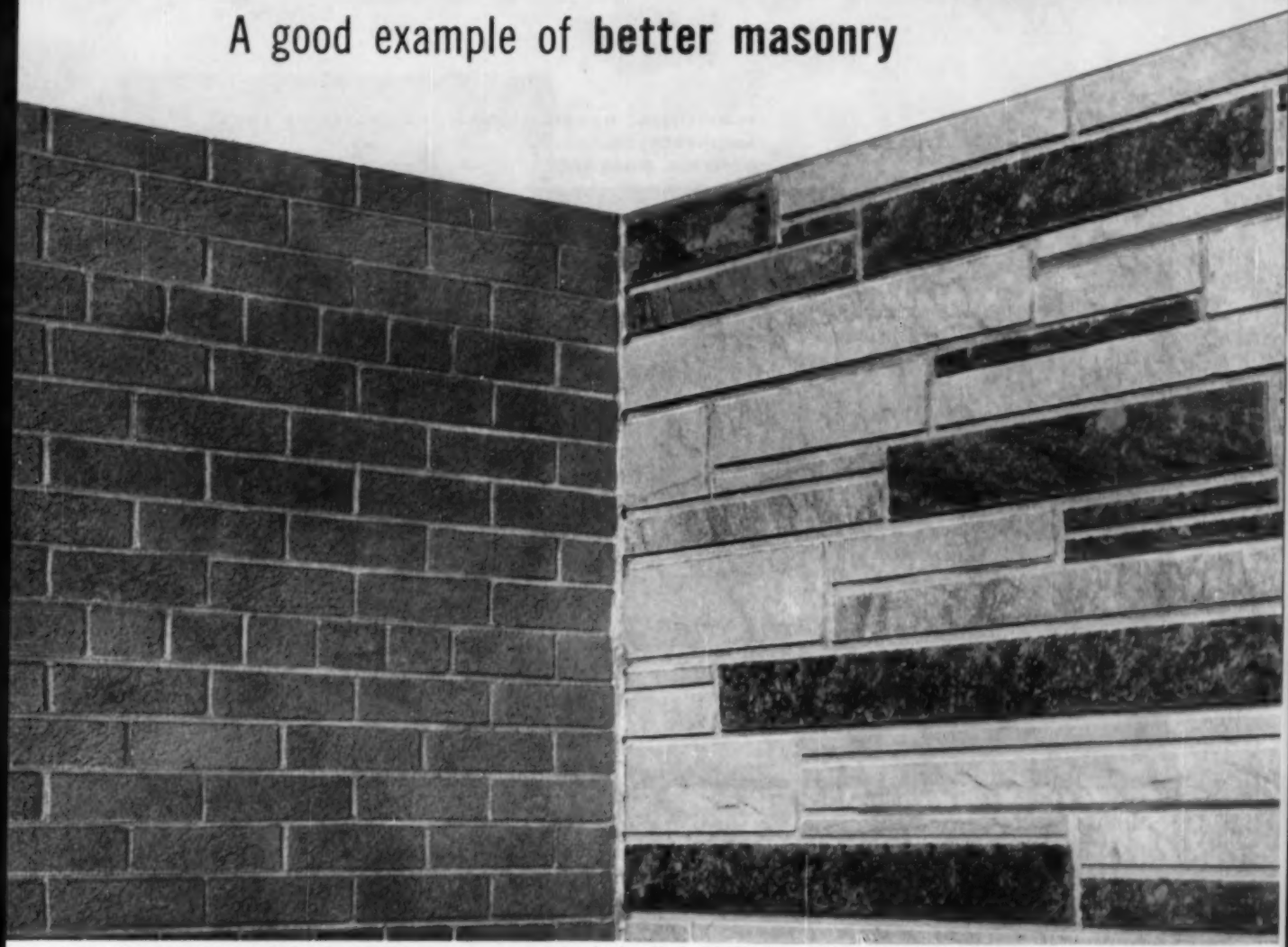
*The Grant catalog contains 108 pages of full data on all sliding hardware needed in building construction. Write for your free copy.*

**Grant** *outstanding single source for* **SLIDING HARDWARE**

the Grant Pulley and Hardware Corporation
31-71 Whitestone Parkway, Flushing 54, N. Y.
944 Long Beach Avenue, Los Angeles 21, Calif.

Grant manufactures a full line of Sliding Door Hardware • Drawer Slides • Drapery Hardware • Sheaves and Track • Accessory Hardware • and the new Grant Folding Door

# A good example of **better masonry**



**DURABLE, WEATHER-RESISTANT JOINTS** improve appearance of stone, brick, or block; pleasing color can also be achieved with uniform Atlas Mortar Cement. Illustrated is brick and stone masonry of Nicolet High School (below), Glendale, Wis. Architect: Fritz von Grossman, A.I.A. Contractor: Becker Construction Co., both of Milwaukee, Wis.

## ...and the contractor used **Atlas Mortar Cement**

"We are well satisfied with Atlas Mortar's workability in all weather conditions, and its weathering and final appearance," says Mr. Fred Becker, Vice President, Becker Construction Co., Milwaukee, Wis.

In specifying Atlas Mortar Cement for jobs large and small, architects help builders obtain a long-lasting good appearance in finished masonry. Because Atlas Mortar Cement is of uniform quality, it gives dependable performance, bag after bag, along with durability in freezing-thawing weather.

Atlas Mortar Cement is famous, too, for its smoothness, water retention and workability retention, which are necessary for good masonry craftsmanship.

Specify Atlas Mortar Cement for better masonry. Complies with ASTM and Federal Specifications for masonry cement which now include requirements for soundness (low expansion) in autoclave.

**UNIVERSAL ATLAS CEMENT COMPANY**

UNITED STATES STEEL CORPORATION SUBSIDIARY

100 PARK AVENUE, NEW YORK 17, N. Y.

**Atlas® Mortar Cement**

**FOR BETTER MORTAR • FOR BETTER MASONRY**

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**UNITED STATES STEEL HOUR — Televised alternate Wednesdays — See your newspaper for time and station.**

**TERRITORIAL HEADQUARTERS, THE SALVATION ARMY**
**ARCHITECT:** *Skidmore-Olson Co., Chicago*
**GENERAL CONTRACTOR:** *Paschen Contractors, Inc.*

# KAWNEER METAL WALL / *responsibility from the anchors on out!*

The new Salvation Army Territorial Headquarters in Chicago is another example of Kawneer's ability to engineer, produce and install a complete skin from the anchors on out. Kawneer works closely with the architect by helping him establish his design budget well in advance of the bids. Kawneer assures him that the translation of his design will be true and accurate. The curtain wall of this building will consist of Ingram Richardson 2" insulated porcelain enameled steel sandwich panels, double-glazed pivoted Kawneer aluminum windows and self-supporting aluminum mullions. Special weather-tightness features, adequate provision for expansion and contraction, and tested prefabrication methods assure the architect complete client satisfaction. For further information on how Kawneer can assist you in metal wall engineering write: Metal Wall Department, Kawneer, Niles, Michigan.

**Other Kawneer metal wall jobs:**

Tishman Buildings, Los Angeles
Equitable Life Building, San Francisco
Insurance Exchange Building, Oakland
Imperial Oil Co., Sarnia, Ontario
Newark Center Building, Newark
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Fireman's Fund Insurance Co., San Francisco
Superior Oil Office Building, Los Angeles
Mutual Benefit Life Insurance Co., Newark

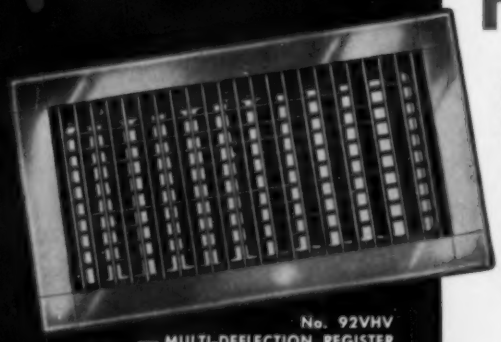
**Write for folders describing Kawneer metal wall jobs and windows.**

50TH ANNIVERSARY
Kawneer
General Offices
NILES, MICHIGAN
ARCHITECTURAL PRODUCTS DIVISION
1906–1956

Because

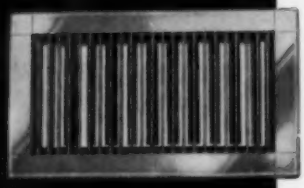
THEY PROVIDE

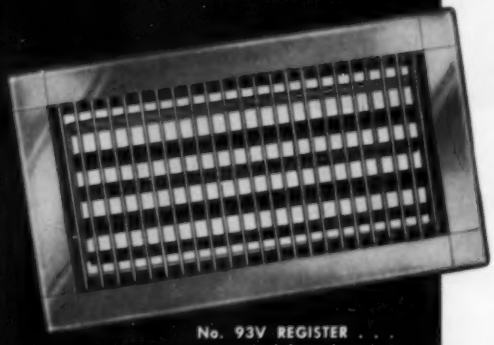
# Perfect Air Control



No. 92VHV — MULTI-DEFLECTION REGISTER Vertical face bars, horizontal secondary bars, vertical louvers. Also available without valve, No. 92VHO.

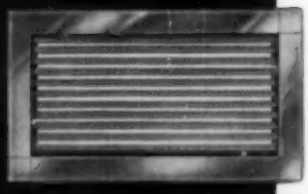
No. 92VOV — SINGLE DEFLECTION REGISTER with vertical face bars and louvers. Also available without valve, No. 92VOO.





No. 93V REGISTER . . . vertical front bars set straight, horizontal louvers.

No. 94A GRILLE . . . horizontal face bars set at 22° angle for up or down deflection.



H&C TRIPL-AIRE . . .

## REGISTERS & GRILLES for COMMERCIAL INSTALLATIONS

. . . are already downright favorites with a large and rapidly growing number of architects, air conditioning engineers and installers. For with this line it's never necessary to compromise. It permits you to readily achieve the exact air distribution, direction and volume best suited to each and every situation. There are 26 standard sizes, up to 36" x 12", offering 260 possible horizontal and vertical deflection combinations. Intermediate sizes up to 36" x 36" may be had on order. Front adjustments control face bars and louvers, and opposed louvers permit absolute volume control with equal distribution over entire face. Top quality "Decorator Gray" enamel finish. Your nearby H&C Jobber has complete details. We will be glad to furnish his name and location on request.

H&C FIXT-AIRE . . .

. . . return air registers and grilles designed to complement and harmonize with the TRIPL-AIRE line. Registers have a single bank of face bars in fixed vertical or horizontal position, and feature the same opposed louver construction for positive volume control found in TRIPL-AIRE units. Grilles are available with horizontal face bars set at 22° angle for up or down deflection where desired. One-piece sizes up to 36" x 30".

CONVENIENT CATALOG GIVES COMPLETE DETAILS AND ENGINEERING DATA . . . Available from H&C Jobbers or write direct.

HART & COOLEY MANUFACTURING COMPANY

Dept. I-AC, HOLLAND, MICHIGAN

# Problem:

How to provide SOUND CONDITIONING without limiting architectural features.

The First City National Bank of Houston, Texas, where wall and ceiling panels are sound conditioned with Sprayed "Limpet" Asbestos.

# Answer:

Specify SPRAYED "LIMPET" ASBESTOS.

Sprayed "Limpet" Asbestos PERMITS FREEDOM OF ARCHITECTURAL TREATMENT, EFFICIENTLY CONTROLS SOUND. It might be the answer to similar problems for your clients. Sprayed "Limpet" Asbestos is fireproof asbestos fibers that are actually SPRAYED on and adhere permanently to any surface. There's no expensive surface preparation . . . no cutting, fitting or attaching. Sprayed "Limpet" Asbestos is applied by K & M distributors who are experienced applicators.

AND SPRAYED "LIMPET" ASBESTOS . . .

**Efficiently insulates** (on single layer roof it can save as much as 50% in heating costs).

**Provides fire-safe lining** (approved by Underwriters' Laboratories as a lightweight fire retardant on beams, columns, cellular floors).

**Eliminates "sweating" effect** (excellent for controlling condensation on walls and ceilings in any type application).

For complete information see SWEET'S ARCHITECTURAL FILE or write to us.

K&M best in asbestos®

**KEASBEY & MATTISON**
COMPANY • AMBLER • PENNSYLVANIA

HERE'S WHY

# CERTIFIED CBM CERTIFIED by ETL BALLASTS

## ENJOY A PREFERENCE OF NEARLY 2 TO 1

**In 1955, nearly 2 out of 3 HPF ballasts were CERTIFIED CBM BALLASTS.**

*There is just one reason for this preference:*

**CERTIFIED CBM BALLASTS assure more satisfactory and economical fluorescent lighting.**

Built to exacting specifications that provide the precise electrical needs of fluorescent lamps, and periodically checked by Electrical Testing Laboratories, Inc., CERTIFIED CBM BALLASTS are your assurance of:

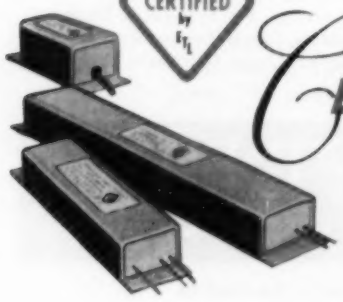
**RATED LIGHT OUTPUT • RATED LAMP LIFE**
**LONG BALLAST LIFE • TROUBLE-FREE OPERATION**
**FREEDOM FROM NOISE**

. . . all contributing to better lighting, lower maintenance cost and more economical fluorescent operation.

*Total ballast sales from U. S. Dept. of Commerce. CERTIFIED CBM BALLAST sales from ETL reports.

Send for free booklet, "Why It Pays to Use CERTIFIED CBM BALLASTS in Fluorescent Lighting Fixtures".

CBM CERTIFIED by ETL



## CERTIFIED BALLAST MANUFACTURERS

**2116 KEITH BUILDING · CLEVELAND 15, OHIO**

Seven of the country's leading manufacturers of ballasts make CERTIFIED CBM BALLASTS. Participation in CBM is open to any manufacturer who wishes to qualify.

# WAYLITE MASONRY

## chosen for first fabricated house by

# FRANK LLOYD WRIGHT

Erdman Homes, Madison, Wisconsin, builder. Top view shows main entrance. Lower shows use of Waylite masonry units.

Frank Lloyd Wright's design of a residence for fabrication is now a reality. The first has been built at Madison, Wisconsin, and Waylite Masonry units were used for the massive utility core . . . the enormous fireplace . . . and the wall and flowerbox surrounding the terrace.

Waylite Masonry Units are always of high quality. They offer many unusual advantages. See 24 pages in Sweets, or write for catalog of engineering data and construction details. The Waylite Co., 20 North Wacker Drive, Chicago 6, or P.O. Box 30, Bethlehem, Pa.

**WAYLITE**
MASONRY UNITS

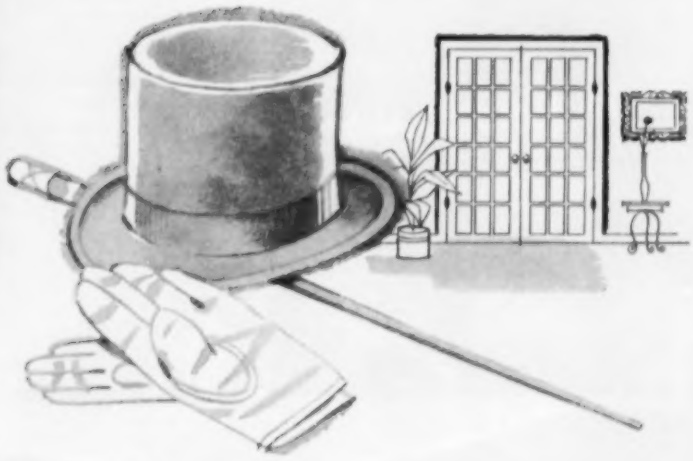
**The lightweight unit for modern construction**

*The graceful touch that says so much . . .*

# THE HAGER *Manhattan*

## OLIVE KNUCKLE HINGES

BB-1201-M
olive knuckle illustrated.
Available in
3", 5", 6" sizes.



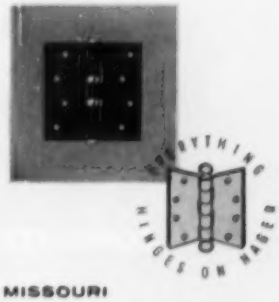
*the sophisticated high-fashioned hinge*
*with the dramatic 1960* **BLACK 'N' BRASS LOOK!**

Quietly . . . stylishly . . . memorably . . . *Hager Manhattan Olive Knuckle Hinges* distinguish the homes, clubs, offices where taste and function are designed by the discriminating architect or builder to go glove in glove.

The practicality of this dramatic hinge by Hager . . . the hinge that swings on 100 years of experience . . . is sheathed in Hager's excitingly luxurious black *Manhattan* finish . . . accented by one elegantly simple band of brass. Here is the charming small touch which gives the medium-weight door (receiving average-frequency use) the look of distinction.

On your next job . . . and every job . . . which calls for one touch of elegance, specify *Hager Manhattan Olive Knuckle Hinges*—Symbol M—permanent testimony to your good design taste.

*BB-1241-M*
*Button Tip Hager*
*Manhattan Finish*
*now available on*
*all Butt Hinge*
*Classes and Sizes*




C. HAGER & SONS HINGE MANUFACTURING COMPANY • ST. LOUIS 4, MISSOURI

# 4

**Important reasons why the architects chose**

# REINFORCED CONCRETE for

**these new Houston parking garages**

Rice Hotel Parking Garage, Houston, Texas

1. **LOWER INSURANCE RATES** . . . especially in exposed structural systems, because of the inherent fireproof qualities of reinforced concrete.
2. **LESS MAINTENANCE** . . . reinforced concrete can be exposed directly to the weather. It requires no painting or other protection . . . hence, practically no maintenance.
3. **LOWER STORY HEIGHTS** . . . the long spans in these garages would usually have required deep beams or girders. With concrete joist construction, the beams are shallower, making possible money-saving, lower story heights.
4. **FASTER STARTS . . . EARLIER COMPLETION DATE** . . . reinforced concrete structures start quicker . . . are completed sooner because all necessary labor and materials are readily available from local sources.

*Compare . . .* **YOU'LL SAVE WITH REINFORCED CONCRETE**

Foley Parking Garage, Houston, Texas

**Rice Hotel Parking Garage**
Architect: J. Russ Baty*
Engineer: Robert J. Cummins*
Contractor: J. A. Jones Construction Company, Charlotte, N. C.

**Foley Parking Garage**
Architect: Kenneth Franzheim & Associates*
Engineer: Francis J. Niven*
Contractor: Frank Messer & Sons, Inc., Cincinnati, Ohio

*Houston, Texas

**CONCRETE REINFORCING STEEL INSTITUTE**
38 South Dearborn Street • Chicago 3, Illinois

*Design for Home Entrance and Water Garden by Hugh Stubbins, A.I.A.*

# "CERAMIC TILE... A PRACTICAL MATERIAL OF INFINITE VARIETY AND COLOR"

Hugh Stubbins

A classic material in a modern setting . . . that's ceramic tile in this home entrance and water garden designed by distinguished architect Hugh Stubbins. Look and you will agree Ceramic Tile is in tune with today's cry for more beauty, less work!

Take stock of the standard tiles used: red quarry tile for the inviting foyer entrance . . . smaller floor tile units for the hall and the distinctive pool . . . a random pattern of pastel tiles for the gracefully curved wall screening the living room . . . and all so easy to clean!

Ceramic tile never fades, burns, dents, stains or needs replacement. This means that your client's initial cost for a ceramic tile installation is his last cost. See if ceramic tile can't add distinction, subtract future maintenance costs in your next residential, institutional or commercial project.

You have the widest possible range of colors and sizes to help you achieve custom effects at no extra expense. Ask your tile contractor to show you color samples and sizes. And be sure to ask him about the cost-cutting possibilities of ceramic tile installed by the adhesive method.

*The Modern Style is* CERAMIC tile

**TILE COUNCIL OF AMERICA, INC., Room 3401, 10 East 40th St., N. Y. 16, N. Y. or Room 933, 727 W. 7th St., Los Angeles, Calif.**

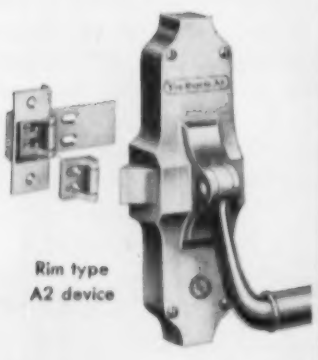
**PARTICIPATING COMPANIES:** American Encaustic Tiling Co. • Architectural Tiling Co., Inc. • Atlantic Tile Mfg. Co. Cambridge Tile Mfg. Co. • Carlyle Tile Co. • Dover Ceramic Co. • General Tile Co. • Gladding, McBean & Co. • Jordan Tile Mfg. Co. • Mosaic Tile Co. • Murray Tile Co., Inc. • National Tile & Mfg. Co. • Olean Tile Co. • Pomona Tile Mfg. Co. Ridgeway Tile Co. • Robertson Mfg. Co. • Royal Tile Manufacturing Co. • Sparta Ceramic Co. • Stylon Corp. • Stylon Southern Corp. • Summitville Tiles, Inc. • United States Ceramic Tile Co. • Winburn Tile Mfg. Co.

A-6934

# Von Duprin

FIRE AND
PANIC EXIT DEVICES

## Durable . . . Dependable . . . Demanded



Rim type
A2 device

• Built to last, designed to absorb punishment, Von Duprin Exit Devices handle the heaviest traffic any building can offer. There's efficiency at your door with Von Duprin on the job.

Whether seldom used or in constant service, these are the devices for effortless safety, even in the panic of that once-in-a-lifetime emergency. Many Von Duprin devices are still providing this service after 40 exacting years of use, with only normal maintenance. Architects, builders, building superintendents—the men who know—insist on Von Duprin, exit devices that always stand ready . . . for "the safe way out."

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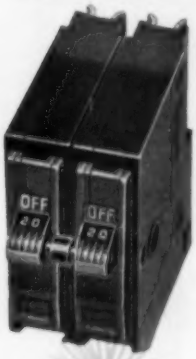
Something NEW Has Been Added To—

# QO—FINEST BREAKER EVER BUILT!

## 1-POLE

15-50 Amps

## 2-POLE




15-70 Amps

## 3-POLE

15-50 Amps

**ONE, TWO and THREE POLES GO ANYWHERE—UNLIMITED!**

**Square D's NEW 3-pole QO crashes the 3-phase price barrier!**

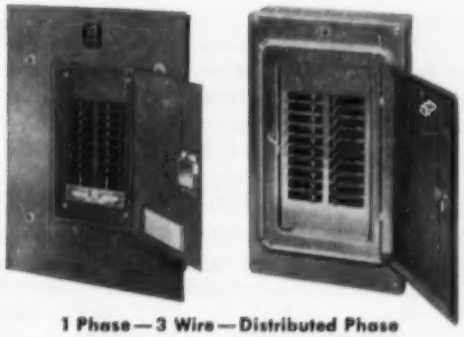
**Square D's 2-pole QO Now extended to 70 Amperes for heavier loads!**

**QO FEATURES**

- One size per pole. No space penalty
- Plug-in mounting. No time-wasting screws
- Silver-plated connections equal to best bolted design
- Switches like a "T" rated switch
- Temperature-corrected. No nuisance tripping
- Meets Federal Spec WP-131A—Class A
- Box lugs on line, load and neutral
- Rejection "ears" prevent overprotecting mistakes
- **NO CALL BACKS**

*Write for QO Bulletin. Address Square D Company, 6060 Rivard Street, Detroit 11, Michigan.*

**SAME BREAKER...PANELBOARDS & LOADCENTERS**



1 Phase—3 Wire—Distributed Phase
3 Phase—4 Wire—Distributed Phase
**2 THROUGH 42 CIRCUITS**

**NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!**

**SQUARE D COMPANY**

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*Now Armco* ALUMINIZED STEEL® *Type 2 offers you a building material with the strength of steel plus the atmospheric corrosion resistant properties of aluminum. It creates new opportunities to give your designs economical durability and maximum structural efficiency.*

ALUMINIZED STEEL is sheet steel coated on both sides with aluminum by a special hot-dip process. The tightly adherent aluminum coating on this 2-in-1 metal gives it remarkable durability. 17-year exposure tests in an industrial atmosphere show this aluminum coating lasts at least 3 times as long as a commercial zinc coating on galvanized sheets.

**High Strength**

Besides a durable, attractive matte surface, ALUMINIZED STEEL has the extra strength that only steel can offer. You can specify ALUMINIZED Type 2 for exterior applications with the assurance of structural stability and long maintenance-free service.

In addition to strength and corrosion protection, ALUMINIZED Type 2 provides added dividends of fire resistance and heat reflectivity. At 800 F it has more than 10 times the strength of aluminum. ALUMINIZED STEEL reflects about 80% of radiant heat—keeps buildings cooler in summer and helps cut winter heating requirements.

Let the multiple advantages of Armco ALUMINIZED STEEL Type 2 work for *your* clients. Specify it for long-lasting roof decking and ventilators, exterior panels, rolling doors, and similar units.

For complete information on this new material for outdoor service, just fill out and mail the coupon.

## ARMCO STEEL CORPORATION

2646 Curtis Street, Middletown, Ohio

Sheffield Steel Division, Armco Drainage & Metal Products, Inc., The Armco International Corporation

# Jamison Sound Reduction Doors help muffle high level engine noise

*above*—JOB-ENGINEERED Jamison S-R Doors conform to special shape of openings on installation at Long Beach Division of Douglas Aircraft Co., Inc. Airplane shown is Douglas RB-66.

*below*—INNER and OUTER set of Jamison S-R Doors shown on high thrust jet engine test cell. Note massive, vibration-proof hardware.

There's no better test of sound reduction doors than when they must close down on the uproar produced by a couple of J-71 engines. And there's no more conclusive proof of the effectiveness of these Jamison S-R Doors than the fact that they have been specified time and again by airlines, engine manufacturers and the military services.

Unwanted noise has been an object of study and research by Jamison engineers for years. They found that the main factor in minimizing sound transmission through a structure is weight per unit area. This led to the development of the Jamison "Mass Principle." And the application of this principle has proven effective ever since Jamison first began building sound reduction doors over 30 years ago.

Bring *your* noise problem to Jamison for dependable help, authoritative information. Write for Bulletin SR 22 to Sound Reduction Door Div., Jamison Cold Storage Door Co., Hagerstown, Md., U.S.A.

**JAMISON**

**engineered doors**

For 50 years the leading builder of cold storage doors

# Gentle heat uniform, healthful

## ...yours from Modine—
### first name in convector radiation

FOR those who want modern heating at its finest, there's only one answer — Modine convector radiation. Unmatched performance is combined with quiet beauty . . . long life with uniform, healthful heating. Exclusive features, like fingertip damper control, are further reasons why architects and engineers select Modine for their finer buildings.

You can choose from 30 types, 8000 sizes of Modine Convectors—deluxe, standard and institutional models—free-standing, fully and partially recessed. Call the Modine representative listed in your classified phone book, or write Modine Mfg. Co., 1510 DeKoven Ave., Racine, Wis.

**Modine**
CONVECTOR RADIATION

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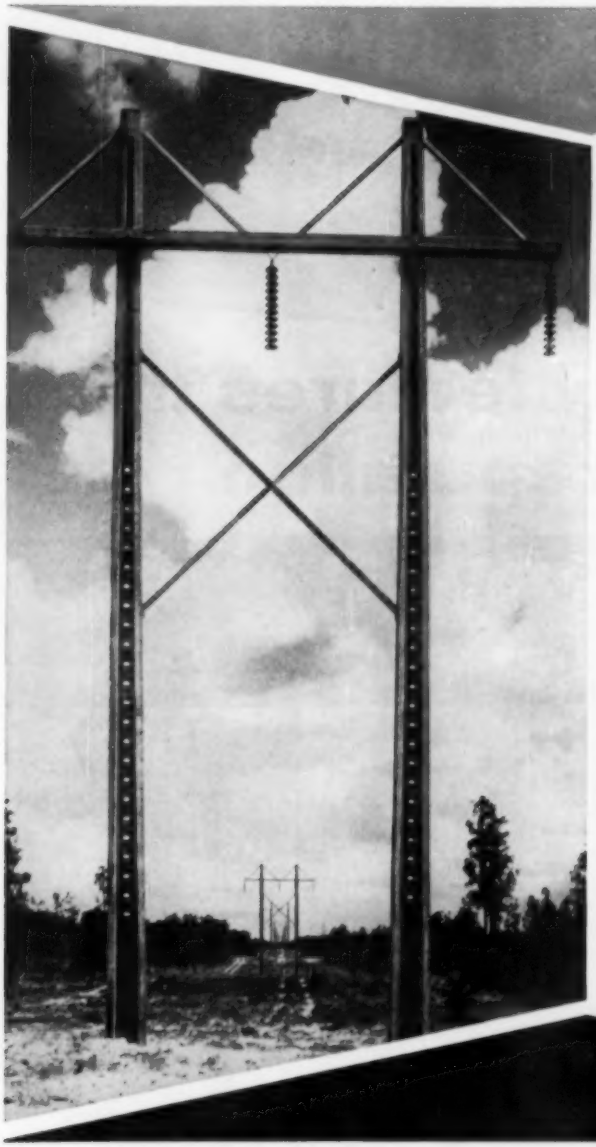
*In Canada:* Sarco, Ltd., Toronto



## TODAY...

*Roebling tensioning materials*
*have created many markets*
*for prestressed concrete . . .*
*warehouses • garages • stadiums*
*bridges • piers • hangars*
*and other construction*

## TODAY...

*Another new market for fabricators*

# Prestressed* Concrete Line Poles

Shown here is one of the latest in the constantly growing list of applications for prestressed concrete. These power line poles were designed and fabricated for the Florida Power Corporation by Finfrock Industries, Inc., Orlando, Florida.

Each pole is prestressed with ⅜" diameter Roebling uncoated 7-wire stress-relieved strands, pretensioned and bonded to the concrete.

Easily transported and installed, the 65 ft (above ground) poles have a life expectancy of 50 to 100 years. Once erected, they are maintenance-free. The high cost of replacement every few years is eliminated.

Why don't you investigate the possibilities of this new market to increase your profits? Roebling engineers, who pioneered in the development of prestressed concrete in America, will supply general information or help with specific problems. Write to Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, N. J.

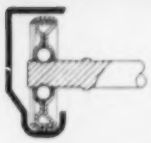
**ROEBLING** CF&I

*A Subsidiary of The Colorado Fuel and Iron Corporation*

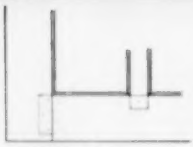
*Not *to be confused with ordinary reinforced concrete*

# Quality features that live up to your reputation

## Rō-WAY
### overhead type commercial doors



**BALL BEARING ROLLERS**
with double-thick steel tread —smooth, quiet

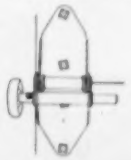


**MORTISE AND TENON JOINTS**
waterproof glued *and* steel doweled—extra strong

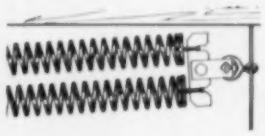
**SEAL-A-MATIC HINGES**
graduated for weather-tight protection

*free architect's manual*

Complete details, specifications, drawings, etc. on Ro-Way's entire line. Especially helpful in selecting just the right door. Ask for Manual 55.

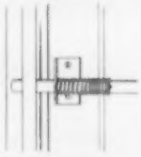


**RO-WAY HARDWARE**
*Parkerized and painted for maximum rust prevention*

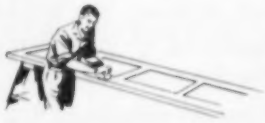


**POWER-METERED SPRINGS**
perfectly matched to counterbalance weight of each door

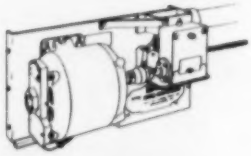
**TAPER-TITE TRACK**
assures firm closing, easy opening



**LOCKED AT BOTH SIDES**
Rugged lock bars fit slot in each vertical track



**PRECISION-FIT MILLWORK**
both drum and hand sanded for smoothest finish



**ELECTRIC OPERATION**
optional at slight extra cost

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OVERHEAD TYPE DOORS

*there's a Ro-Way for every Doorway!*

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Nationwide sales and installation service. See your classified telephone directory for nearest Ro-Way distributor.

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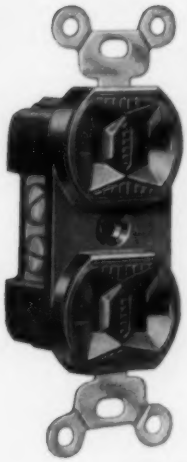
IT PAYS TO HAVE HUBBELL GOOD CONNECTIONS

# FIRST ORDER OF EVENTS...

# ADEQUATE WIRING WITH HUBBELL QUALITY DEVICES

Pictured below, the beautiful Rochester Community War Memorial, new home for great events . . . today a convention, tomorrow a circus, next week an ice extravaganza or a water ballet. Year-in and year-out one great activity follows another and each one is dependent on the *safe* and *uninterrupted* flow of electrical power.

This building is a fine example of adequate wiring at its best because the wiring is planned for the "years ahead" as well as for the "needs of today". That's why Hubbell wiring devices, tops in quality and engineered for peak performance, were specified. If adequate wiring is *your* objective, remember — *It Pays To Have Good Connections.* Specify Hubbell.



Cat. No.
**9595**
Specification Grade
T-slot Duplex Receptacle
10 Amp., 250 V.
15 Amp., 125 V.

**THE COMMUNITY WAR MEMORIAL BUILDING, ROCHESTER, N. Y.**
*(Second unit of Rochester's Civic Center)*

| ARCHITECT | CONSULTING ENGINEER | ELECTRICAL CONTRACTOR | HUBBELL SUPPLIER |
|---|---|---|---|
| Woodorp and Northrup | Robson and Woese, Inc. | Driscoll Electric Co. | Graybar Electric Co., Inc. |
| Rochester, N. Y. | Syracuse, N. Y. | Rochester, N. Y. | Rochester, N. Y. |

Cat. No.
**20403**
Hubbellock
4-Wire Receptacle
30 Amp., 600 V. AC
20 Amp., 250 V. DC

## ABOUT THE BUILDING:

The Community War Memorial will provide facilities for all types of public events. The auditorium has a clear span of 260 feet. Six thousand persons can be accommodated on the permanent seating deck and provision has been made for four thousand additional temporary seats. It has an 85' x 200' ice rink, a stage 100' x 40', eighteen offices and eight special meeting rooms.

Hubbell's T-slot Duplex Receptacles are installed throughout the building for safe, trouble-free "plug-in connections" wherever needed. Rugged, premium quality 4-Wire Hubbellock Receptacles are installed around the ice rink to safely accommodate floodlights, spotlights and other electrical equipment. For the first time, these units are flush-mounted and now can be offered with a special strap for other flush-mounted applications.

# Harvey Hubbell, INC.

DEPT. AR — BRIDGEPORT, CONNECTICUT

## "This Airline Terminal Floor Paid for Itself in One Year"

Here's what Byron Dickey, Manager of Greater Cincinnati Airport, says about his modernization of the terminal floor with ceramic Suntile—

*"We installed Suntile two years ago, applying it with adhesive right over the existing synthetic tile floor.*

*"Even though approximately 3 million people pass through the terminal each year, this floor shows no signs of wear. And it saves so much in cleaning costs that it paid for itself in one year. We save on labor, wax, stripper, and buffing equipment.*

*"Also, there hasn't been one reported accident from slipping since Suntile was installed. Before, accidental falls were numerous."*

When you want *both* style and practicality for floors and walls—call your Suntile dealer . . . You'll like the functionally balanced Suntile colors . . . And for special designs in Suntile, the services of our staff of trained ceramic artists are always available to you at no cost.

*New Catalog* shows colors, shapes, new installations, full specification data. For your free copy, address Dept. AR-126,

**THE CAMBRIDGE TILE MFG. CO.**

*P.O. Box 71, Cincinnati 15, Ohio*



## A LOOK INSIDE THE FIAT

**Sylvan-Aire Lighting System** by Sylvania. Relighting job maintains high 80-foot candle lighting levels at table tops in Hawthorne High School's traditional-styled library. Rows of luminous plastic run between ceiling beams, are mounted flush with bottoms of beams. Installation by Tri-Service Electric Co., Paterson, N. J.

# How they put good reading light into a Tudor library

## ... at Hawthorne (N. J.) High School

In relighting the Hawthorne High School library, school architects S. E. Greydanus & Son (Paterson, N. J.) used a successful new approach. They specified Sylvan-Aire . . . Sylvania's wall-to-wall lighting system . . . had it divided into separate panels of light between ceiling beams. The rows of translucent plastic shielding were mounted flush with the bottoms of the ceiling beams.

**Over-all effect:** Clean, straight ceiling lines . . . a soft, even illumination spread over the entire floor area, blending with the traditional room décor.

**Over-all result:** Good reading illumination levels of 80 footcandles maintained in all parts of the room, including those corners most distant from windows . . . a true shadow-free, glare-free effect. Seeing and reading are easier, room atmosphere is more inviting and conducive to good work and study habits, desk lamps and reading lights become outmoded.

A complete lighting plan to fit your specific school needs can be tailored from Sylvania's complete line of lighting systems and fixtures. We suggest you talk to the Sylvania Lighting Specialist in your area. Or if you prefer, write direct for our free helpful booklet, "Some Whys and Hows of Modern School Lighting," or for other specific data.

Sylvania Electric Products Inc.
Dept. M20, Lighting Division—Fixtures
One 48th Street, Wheeling, W. Va.

**SYLVANIA**

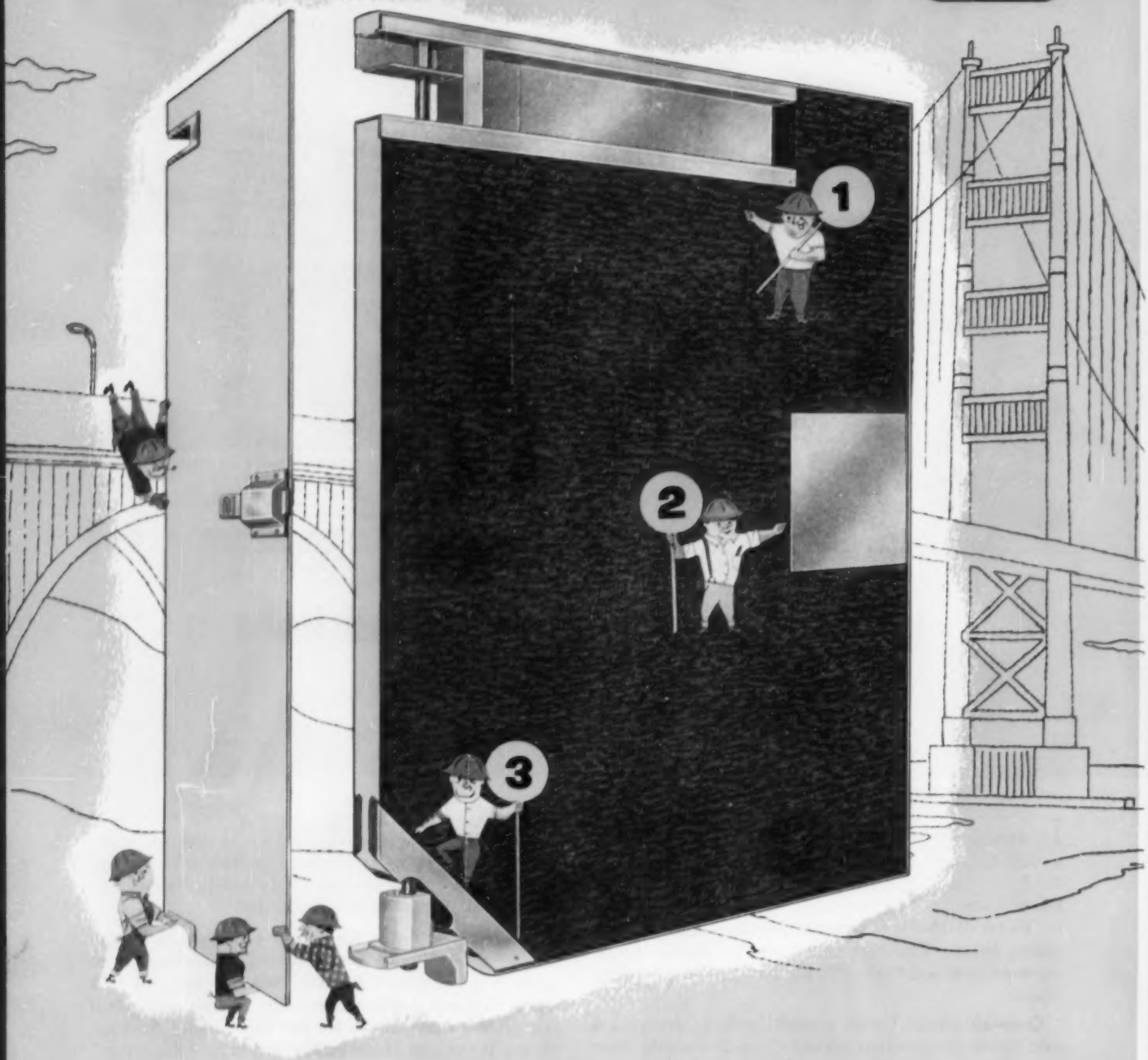
*... fastest growing name in sight*

LIGHTING • RADIO • ELECTRONICS • TELEVISION • ATOMIC ENERGY

# Golden Gate DOOR...

***PROVES*** **BRIDGE-LIKE CONSTRUCTION**
**KEEPS FIAT YEARS AHEAD**
**IN TOILET COMPARTMENT DESIGN**

# A LOOK INSIDE THE FIAT




## ONLY FIAT TOILET COMPARTMENTS OFFER THESE

### *LIFE-LINE** Hardware

FIAT'S new *Life-Line* hardware is designed and manufactured to outlast the compartment installation itself. Simplified instructions insure fast, fool-proof installation—no special tools required.

### ZYTEL** Nylon Hinges

Only FIAT Toilet Compartments have doors that swing on Zytel nylon hinges—smoothly, silently, without measurable wear. No springs—no ball bearings—nothing that requires care—nothing to wear out.

# Golden Gate DOOR...

## *PROVES* BRIDGE-LIKE CONSTRUCTION KEEPS FIAT YEARS AHEAD IN TOILET COMPARTMENT DESIGN

**The *inside* story proves it! FIAT'S Golden Gate Door is engineered far beyond accepted standards—steadily absorbs roughest punishment—readily withstands heaviest stress and shock.**

LIKE SAN FRANCISCO'S FAMOUS GOLDEN GATE BRIDGE, the FIAT Compartment Door has been designed to meet unusual stress, load and impact factors. FIAT'S bridge-like construction establishes a new standard in compartment door construction.

**LOAD EQUALIZER**—Heavy gauge channel reinforcing distributes load away from the top hinge—gives triple additional support to the pintle. This extra reinforcing provides permanent, practical protection against unusual loads—specifically, when children hang from or swing on the door.




**IMPACT ABSORBER**—Formed, heavy gauge plate anchors the slide bolt—distributes shock of severe door "slamming" over wide area. Prevents tearing out of slide bolt or damage to door.

**STRESS RESISTOR**—Channel type reinforcing unit is interlocked with the panel edges—provides basic side-to-bottom support—anchors *Life-Line** Gravity Hinge in position—positively prevents door "sway."

**CLIP AND MAIL COUPON BELOW FOR NEW FIAT LITERATURE**

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FIAT

*Manufacturing Quality Showers and Compartments since 1922*

## YEARS AHEAD FEATURES

### Wide Range of Models

FIAT offers a range of models to meet every budget. Choose from the ceiling or floor supported *Aristo* with exclusive wood-core pilaster, the flush paneled *Duro* or the economical *Permo* models.

*FIAT TRADEMARK **DUPONT TRADEMARK

**FIAT METAL MFG. COMPANY**
**9319 Belmont Ave., Franklin Park, Illinois**

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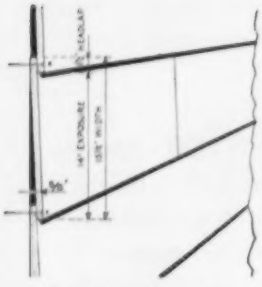
Individual_____

## The new, improved **HOMASOTE**

# beveled siding

## with 10 major-value features



The original Homasote Siding was successfully introduced 25 years ago — and found a quick acceptance. Then came World War II and the diversion of our production to war housing. This was followed by a huge backlog of demand for Standard Homasote in 8′ x 14′ sheets.

Now a greatly increased capacity permits us to produce the new, *improved* Homasote Beveled Siding — with all the old qualities and some important new features.

**On the score of Beauty, Homasote Beveled Siding offers . . .**

**1.** Your choice of 14″ or 10″ exposures. Supplied in 16″ and 12″ widths — and in 2′-8″, 8′-0″ and 10′-8″ lengths.

**2.** In either width, the same luxurious, deep shadow lines that add so greatly to architectural design.

**3.** Homasote Beveled Siding holds paint far longer than does wood — and thus retains its fine appearance for a longer period of time.

**4.** Because Homasote is split-proof and crack-proof, this siding is trouble-free.

**On the basis of Serviceability, Homasote Beveled Siding offers . . .**

**5.** On the lower inside of each piece, a 45° beveling establishes an efficient drip cap — a revolutionary, new feature that means prolonged life (as well as finer appearance).

**6.** Because Homasote is a dense, homogeneous fiber board, this method of siding adds greatly to the insulating value of the outside walls.

**7.** Because Homasote resists to a high degree the passage of air, heating bills are reduced.

**8.** Because of Homasote's great resistance to the absorption of moisture, the house is free from dampness and mildew.

**9.** Both the material and the method of application assure long life for the finished job.

**10.** Because Homasote is *weatherproof*, the siding need not be painted until convenient. Also — if weather causes an interruption in the application, there will be no weather damage to the pieces already applied.

On Pages 31, 32 and 54-57 of the newly-revised Homasote Handbook, you will find the **know-how** of Homasote Beveled Siding. If you haven't yet secured your copy, write for it today. In this 68-page handbook, architects, builders and dealers are finding a wealth of valuable information on all phases of frame construction. It took 46 years of experience and $500,000 of intensive research to write this book. It is free for the asking. Kindly address Department M-9.

**HOMASOTE COMPANY**

TRENTON 3, NEW JERSEY

# Silent Partner

## To America's Finest Lighting Equipment Manufacturers

JEFFERSON CITY ELEMENTARY SCHOOL INSTALLATION, MOLINE, ILL.
LUMINAIRES BY MITCHELL LIGHTING, DIVISION OF COMPCO CORP

A Fluorescent Lamp Ballast is used to . . . preheat lamp electrodes . . . start the lamp with a controlled high voltage and current surge . . . limit and control voltage and current at lower lamp operating levels. To efficiently perform these important functions requires a precision built, dependable Fluorescent Lamp Ballast . . . a ballast of outstanding performance to which lighting equipment manufacturers can entrust the reputation of *their* product. ADVANCE Fluorescent Lamp Ballasts have earned this trust . . . merited the title . . . "Silent Partner".

To achieve this position, ADVANCE TRANSFORMER COMPANY has developed and maintained a program of continuing research. It has built . . . a team of skilled employees utilizing modern production methods . . . a system of quality control and diligent inspection . . . and to further serve, ADVANCE has established a coast-to-coast organization of authorized service-stocking distributors. Yes, it requires all these ADVANCE facilities to completely serve America's finest lighting manufacturers.

Whether you manufacture, specify, install or maintain fluorescent lighting, investigate the fluorescent ballast line that America's leading lighting manufacturers have made their "Silent Partner".

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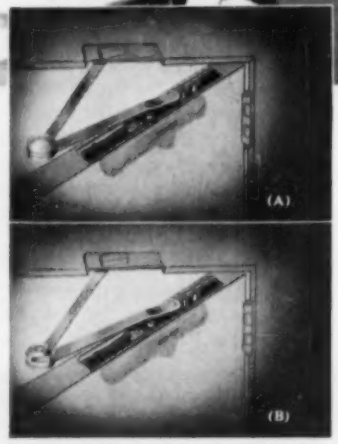
*The Heart of the Lighting Industry*

## NORTON "INADOR" ... a modern door closer keyed to modern design




The complete INADOR mechanism is concealed in a mortise in top rail of door . . . 4 sizes to meet every need . . . all models available with (A) regular arm or (B) holder open arm.

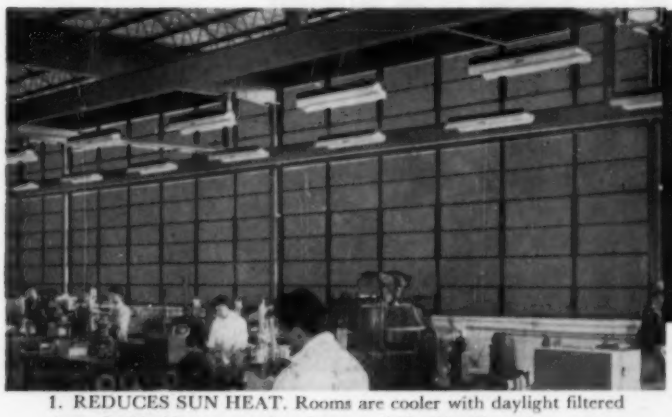
**Effective concealment for trim modern beauty . . . plus the rugged reliability only liquid closers provide!**

You can be sure of complete harmony of design between doors and door closers when you specify *Norton Inador*. You can also be sure your clients will receive all the reliability, durability, low maintenance and precision workmanship so characteristic of all Norton Door Closers. For fully illustrated descriptions and engineering data on this and other models, consult the current Norton catalog. Write for one today if you don't already have a copy.

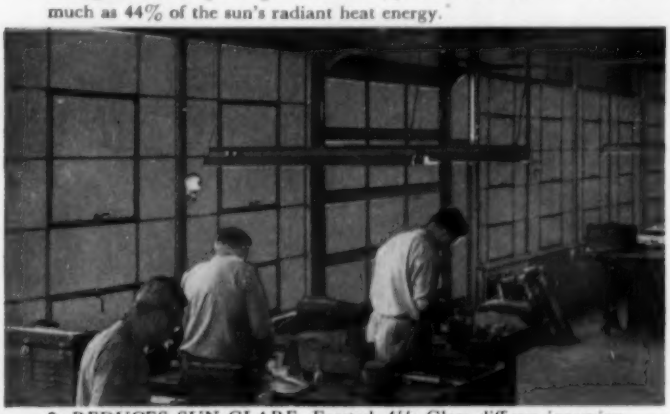
**NORTON®**

DOOR CLOSERS Dept. AR-126, Berrien Springs, Mich.

# *3 ways Aklo® glass gives you*



1. REDUCES SUN HEAT. Rooms are cooler with daylight filtered through this blue-green glass because ¼" *Aklo* Glass shuts out as much as 44% of the sun's radiant heat energy.



2. REDUCES SUN GLARE. Frosted *Aklo* Glass diffuses incoming daylight, thus diminishing "hot" spots of light. This is important when working on highly reflective materials close to windows.

3. SCREENS SKY BRIGHTNESS. Architect Guido A. Binda of Battle Creek, Michigan, used windows to the ceiling for maximum daylight, yet screened out a good portion of sky brightness with Frosted *Aklo* Glass.

## Window Design Freedom

Do your daylighting requirements or architectural treatment call for large ribbons of windows . . . floor-to-ceiling fenestration? Meet these requirements and still keep the problems of sun heat and sun glare under control . . . with Blue Ridge Frosted *Aklo* Glass.

Growing use of *Aklo* in buildings of all types is good evidence of its performance. But see for yourself. Ask your L·O·F Distributor for a Blue Ridge radiometer demonstration which shows how much Frosted *Aklo* Glass reduces glare and sun heat. *Aklo* Glass is readily available from your L·O·F Glass Distributor or Dealer, listed under "Glass" in your phone book yellow pages. Or write to Libbey·Owens·Ford Glass Co., 608 Madison Ave., Toledo 3, Ohio.

**AKLO GLASS** **FILTERS DAYLIGHT**

BLUE RIDGE GLASS

*made by Blue Ridge Glass Corp.,*
*sold by Libbey-Owens-Ford Glass Distributors*

L·O·F GLASS

# Now—for maximum Roof Protection
# Johns-Manville

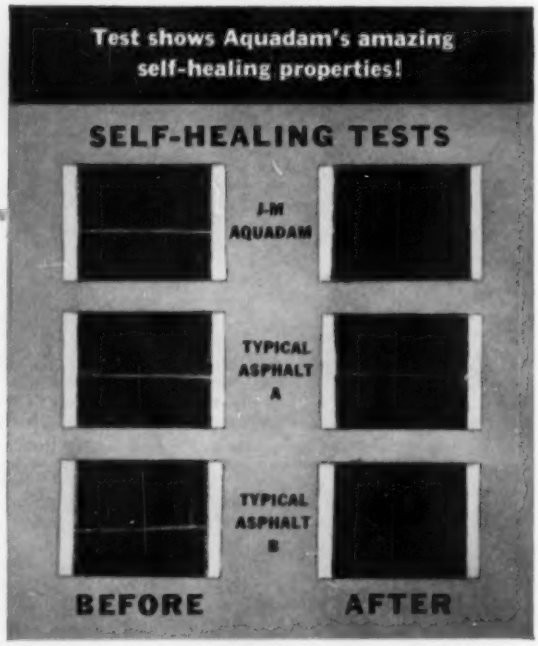
# Aquadam

(slag or smooth surfaced)

# Built-Up Roofs*

## Aquadam offers these important advantages:

- Improved self-healing properties
- Superior weather resistance
- Superior resistance to cracking
- Greater kettle stability
- Exceptional adhesion—stronger bond
- Better resistance to water
- Excellent uniformity




After exposure to normal summer roof temperatures, Aquadam (top) has completely resealed and repaired itself. Asphalt A (middle) and B (bottom) show little or no self-healing properties.

### *J-M Aquadam proved superior by actual test... helps provide longer roof life at no extra cost*

J-M Aquadam Built-Up Roofs owe their proven superiority to the newly developed bituminous cementing agent Aquadam—which is used in the application of the roofing felts.

When applied, the excellent adhesive properties of Aquadam provide a permanent bond to the felts, and to gravel or slag surfacing. Its rigidly controlled quality and excellent flow properties assure easier mopping, thorough coverage, and longer lasting roof life.

Johns-Manville Aquadam is specifically designed to provide maximum built-up roof service for deck inclines from dead level to ½" per foot*.

**Your local Approved J-M Contractor, listed in the classified telephone directory, has complete information about Aquadam Built-Up Roofs. Or write Johns-Manville, Box 158, New York 16, N. Y. In Canada, write 565 Lakeshore Rd. East, Port Credit, Ontario.**

JOHNS-MANVILLE JM PRODUCTS **Johns-Manville**

*Schube-Soucek Photographer, Chicago, Illinois*

**GENERAL OFFICE**

**ILLINOIS BELL TELEPHONE, CHICAGO, ILLINOIS**

No. 6 in a series

## something *Special* by Curtis

# LIGHTING VERSATILITY

(or how Curtis Designers and Engineers solved another lighting problem.)

### GENERAL INFORMATION:

Surface characteristics of the office pictured at the left are:

| | | | |
|---|---|---|---|
| CEILING | metal pan | egg shell white | 73% RF |
| WALLS | plaster | mixed pastels | 42-73% RF |
| FLOOR | tile | grey and red | 25% RF |
| FURNITURE | wood | light grey | 35-40% RF |

### THE PROBLEM:

To design a shallow troffer-type luminaire that would provide maximum high-quality illumination plus the necessary versatility of installation, needed to overcome a variety of ceiling conditions that prohibited total recessing of some of the luminaires, while maintaining a close degree of continuity of appearance.

Turn the page for the solution to this problem.

**CURTIS LIGHTING, INC.**

in Chicago
6135 W. 65th ST.
CHICAGO 38, ILLINOIS

in Los Angeles
242 S. ANDERSON ST.
LOS ANGELES 33, CALIF

in Canada
195 WICKSTEED AVE.
TORONTO 17, CANADA

A. I. A. File 31-F2

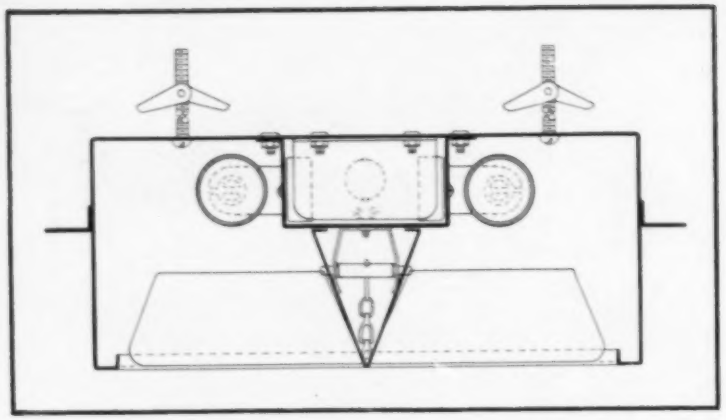


FIG. 1

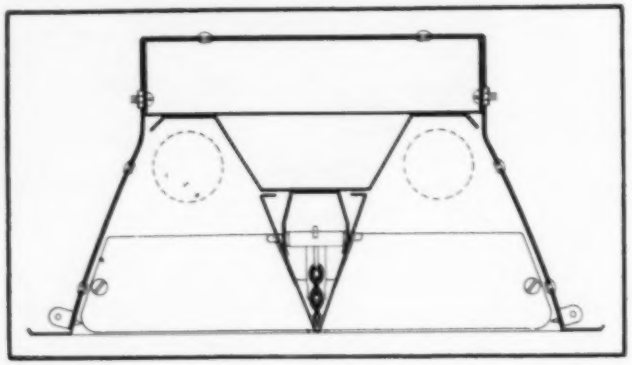


FIG. 2.

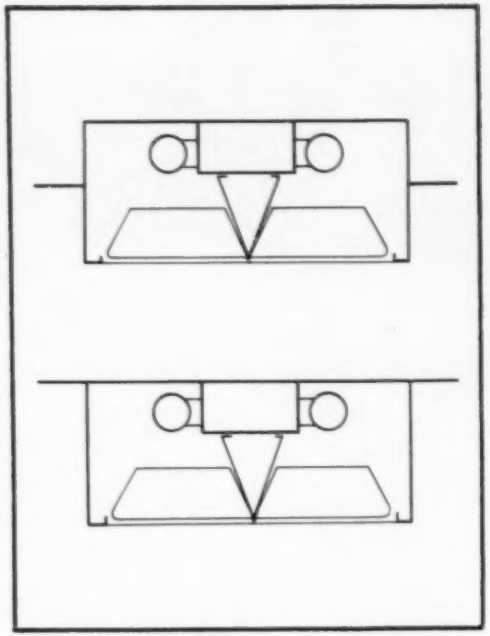


FIG. 3.

FIG. 4.

**THE SOLUTION:**

The luminaire designed to solve this problem is a specially constructed unit shown in Fig. 1.

Constructed of steel, finished baked white Fluracite enamel, the unit is 48" long and 5" deep overall. Crosswise shielding is 45°; a louver provides 35° lengthwise shielding. These special troffers have Alzak Aluminum V-bars and louvers that provide the same appearance as the Curtis Alzak Aluminum troffers installed throughout the office.

This special troffer housing is rectangular in cross section rather than like that of the standard Curtis troffer shown in Fig. 2, thereby simplifying its installation when partially recessed or surface mounted.

In many areas, recessing space was limited to 2½" below ducts and pipes. Special troffers were installed with 4 toggle bolts rather than the customary "U" support straps used for Curtis troffers.

An "L" shaped bracket was designed for surface mounted or partially recessed units. These brackets enabled the contractor to attach them to the luminaire sides, according to the amount of recessing depth available. Fig. 3 illustrates the complete versatility of installation that this method afforded.

Units are installed in varying length rows, 7' o.c., with 4' between ends of units. The size of the office at its longest point is 323'; at its widest point, 148'. The new furred ceiling was constructed 2' below the existing ceiling and the new ceiling height is 8'7¼" from the floor.

Fig. 4, another view of this office, illustrates the success with which Curtis Designers and Engineers solved this lighting problem, by showing the even distribution of light, with its almost complete absence of shadows and annoying brightness contrasts, the degrees of installation—completely recessed to surface mounted—and the overall continuity of appearance.

***LIGHTING PROBLEM? NEED HELP? CALL YOUR CURTIS SALES ENGINEER!***

# 3-STORY WALLS

erected in one section

## Erie Porcelain Enamel 1" U-20 Panels

Ease of erection—up to 5 times as fast as masonry—beauty and economy, were the story behind this modern application of the ERIE U-20 Porcelain Enameled Panel set in Vampco sash frames. Both 3-story and 2-story (illustrated) frames were installed as complete units at Ursuline High School, Youngstown, Ohio.

The ERIE U-20 is a popular 1" thick sash panel offering a Porcelain Enamel face panel of any color, nested with a mechanically fastened metal backing panel enclosing fiber glass insulation. The standard U-20 Panel fits any sash frame which uses retaining stops, and modifications are available for all extruded shape sash frames.

To investigate the possibilities of the ERIE U-20 Panel in your next project, write for detail drawings of the U-20 in the sash frame of your choice.

*Architect:* P. Arthur D'Orazio, Youngstown, Ohio
*Sash:* Valley Metal Products Co.

Erie

**THE ERIE ENAMELING COMPANY**

Erie, Pennsylvania • Chicago • Philadelphia

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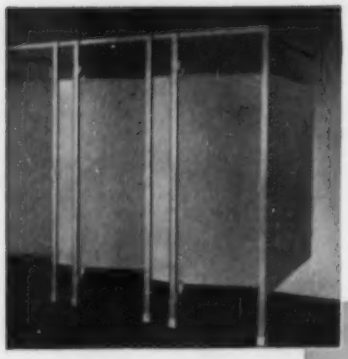
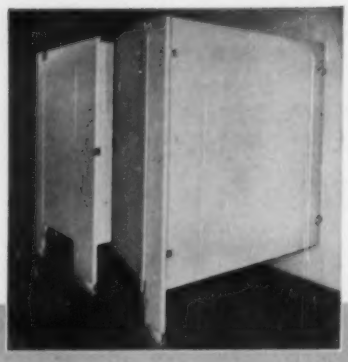
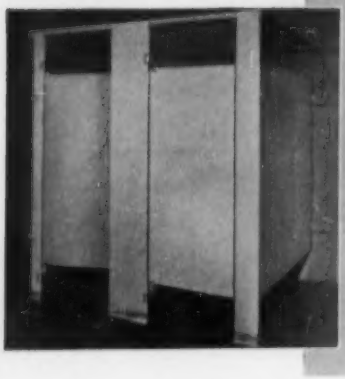




you can count on...



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There's no need for your installation charges to get out of line. Nicholson Toilet Compartments are designed and constructed for rapid assembly and easy adjustment to location contours.

- ✓ **All panels and pilasters pre-drilled, with provision for vertical and horizontal adjustment.**
- ✓ **All hardware locations are pre-drilled and finished.**
- ✓ **Pilasters and front panels are shipped as assembled units.**

***Specify right from this new Nicholson "tell-all" bulletin!***

**Contains complete specifications, illustrations and engineering drawings... facilities, styles, construction, layouts and hardware. Send for a copy today!**

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LIGHT-DIFFUSING ALUMINUM HONEYCOMB
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Whether you're lighting priceless objects, not-for-sale . . . or merchandise priced for quick sale, Honeylite's gentle but completely shadow-free light makes "seeing" a pleasure.
But Honeylite doesn't stop at being just one of the very best light diffusing elements. Salespeople, and more important, customers will tell you that Honeylite's full air circulation makes a room as refreshingly airy as a summer morning . . . cool to work in, and fun to shop in.
And Honeylite's gossamer-weight, all-aluminum construction reduces the costly man-hours of installation, and lengthens the life of lighting units.
For price lists and detailed information call your dealer or write to Hexcel Products Inc., 951-61st Street, Oakland 8, Calif.

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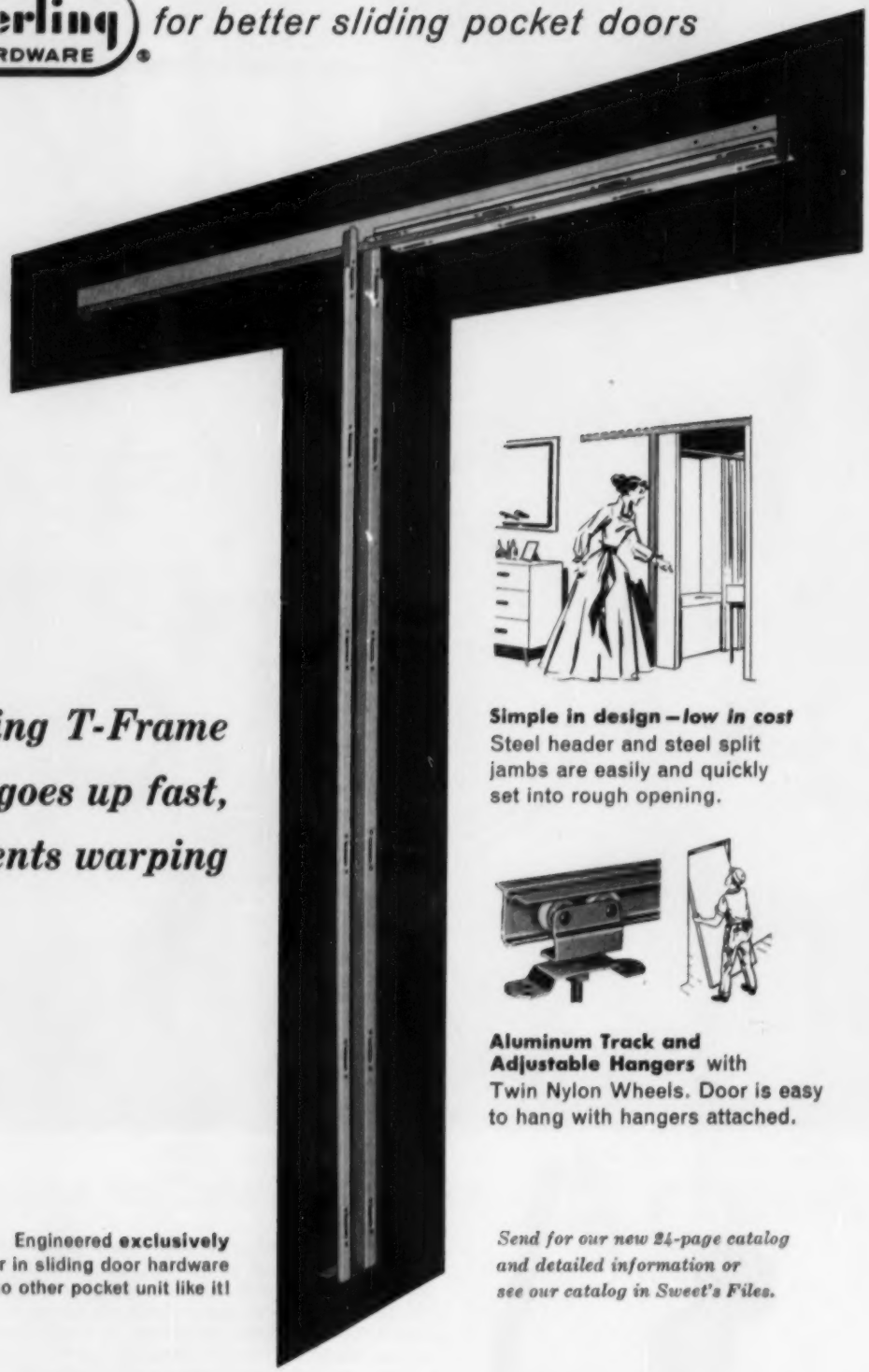

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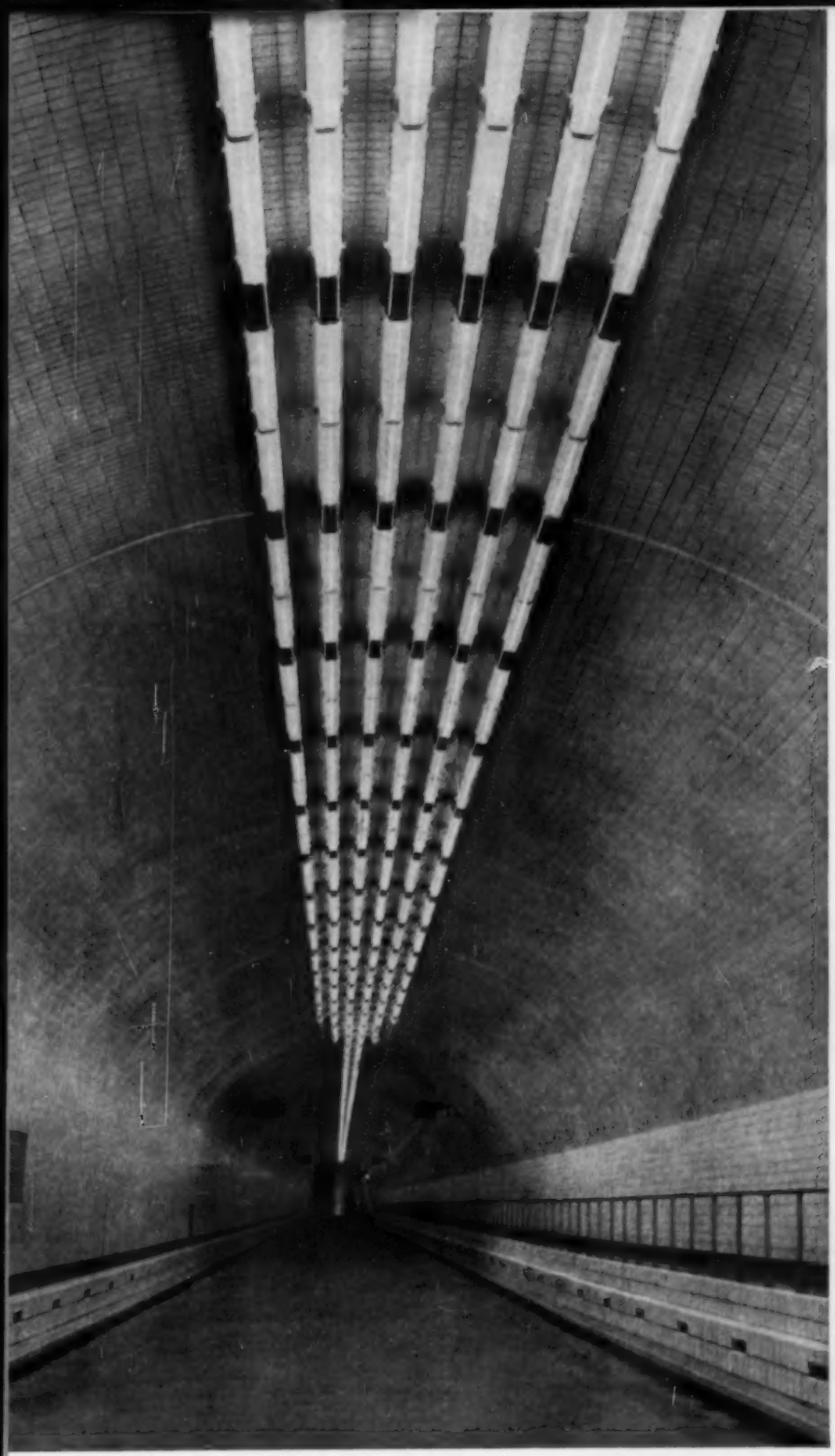

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**Lucite acrylic resin** combines beauty with durability. It provides the lighting industry with a material that is superior for many types of lighting applications. Luminaires of LUCITE are strong, free from discoloration and dimensionally stable. Light in weight, they are easy to handle and install.

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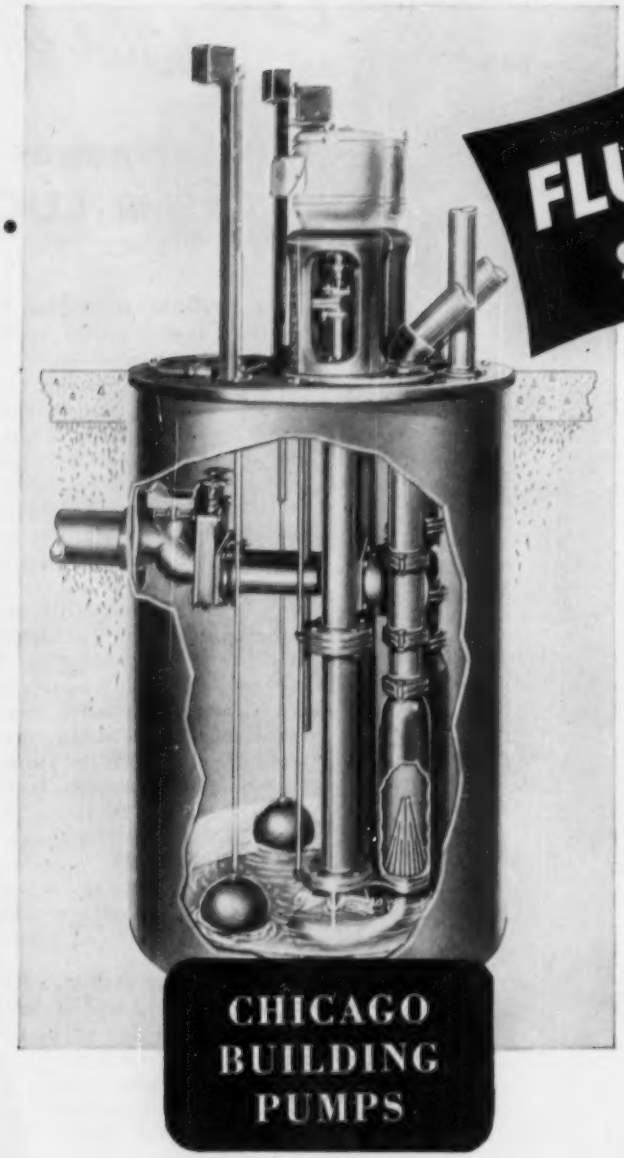


## FLUSH-KLEEN Sewage Ejectors

"Flush-Kleen" is the only true clog-proof sewage ejector. As proof, more than 12,000 have been installed and not one has ever clogged! That's because the impeller handles liquids, only. All coarse matter is strained out, then back-washed from the strainer into the higher level sewer. All other air or liquid ejectors have working parts in contact with coarse material. That's what causes clogging.

"Flush-Kleen" ejectors are usually installed in duplex units that operate alternately. While one pump operates, sewage flows into the wet basin through the idle pump. A strainer ahead of the impeller retains all coarse matter. (See cutaway) When the idle pump starts, the coarse sewage matter in the strainer chamber is flushed into the discharge pipe with liquid sewage. A special check valve prevents discharge back into the inlet line.

**Engineering data showing how to determine sewage ejector capacities for any type or size of building are available. Write to Dept. E for your copy, today. Illustrated: The Type "F" submerged "Flush-Kleen" sewage ejector.**

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From foundation to tower, this church is of all-masonry design. It was laid out on 8" modules, permitting the use of standard block without special shapes or sizes. A wide range of effects was obtained, however, by laying the block in a variety of patterns . . . random ashlar, running bond, vertical stacking, etc. Because of the great block strength necessitated by an edifice of this type, the exterior MONUMENTAL BLOCK was made of sand and gravel concrete. This block has a thicker face shell which greatly increases the tensile strength. It has an average compressive strength of 3,300 psi gross area. The expanded-clay MONUMENTAL BLOCK for the interior was made to supply an average of 2,200 psi gross area. The all-masonry concept of the building was completed by laying floors of soffit block topped by two inches of poured concrete.

# *Built for the Ages*

FIRST CONGREGATIONAL CHURCH OF ALPENA

## ALL-VIBRAPAC BLOCK CONSTRUCTED

*Architect:*
*Edward F. Jansson, A.I.A.*
*Chicago, Illinois*

To meet the requirements of simplicity, tranquility and durability, this remarkably beautiful structure was erected entirely of Vibrapac Concrete Block as basic building material. Ruggedly majestic, yet with simple lines, the exterior beauty of this church has occasioned many favorable comments. It is in the interior, however, that the full beauty of the all-block design is even more apparent. Here the soft, shadowy tones of the acoustical block convey a feeling of dignity and meditation that forms an appropriate background for the contrasting warmth of colorful woodwork, draperies and windows.

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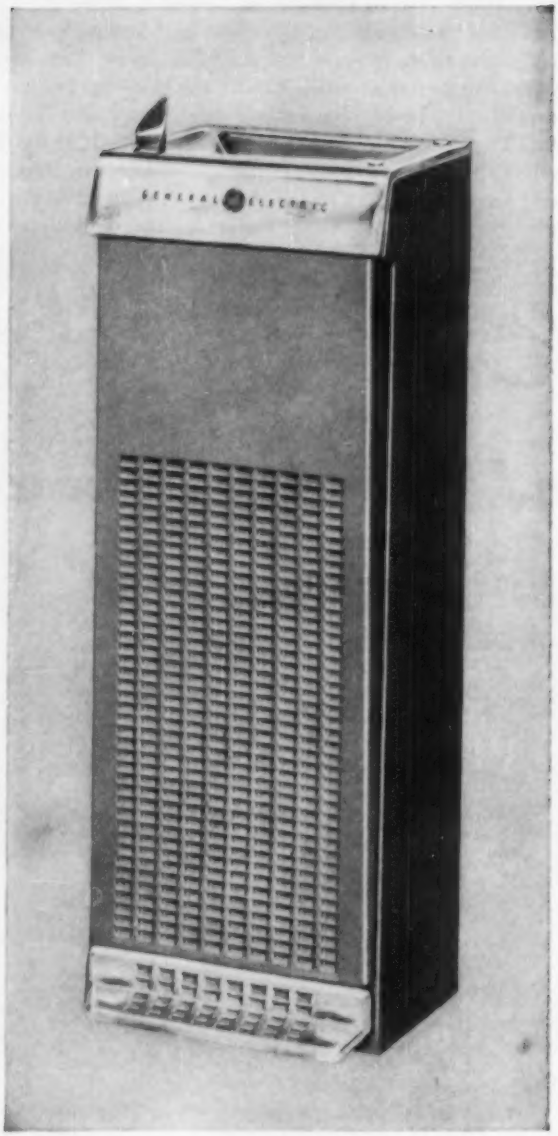

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**MORE SAFETY**—Four double *vertical* uprights per row put the spectator load directly on the floor, not the casters or walls.

**MORE STRENGTH**—Self-supporting, free-standing steel understructure does not depend on wood members for strength.

**MORE ROOM**—22″ or 24″ row depths, plus under-seat clearance provides more toe, heel and leg room.

**MORE VISIBILITY**—10½″ or 11½″ row rise makes seeing easier.

**LESS EFFORT**—Free-floating, interlocked roller housings and supports under seats make Medart Seats easiest of all to open and close.

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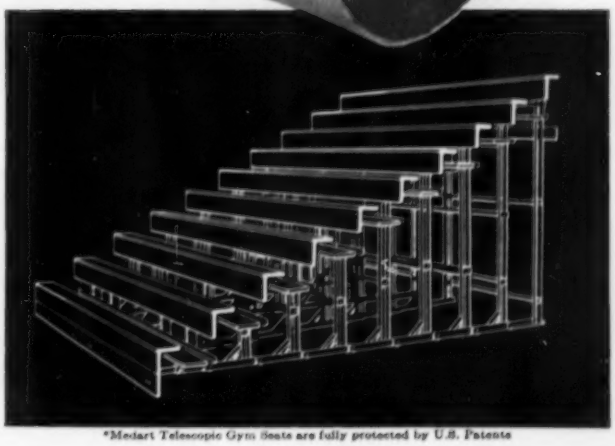

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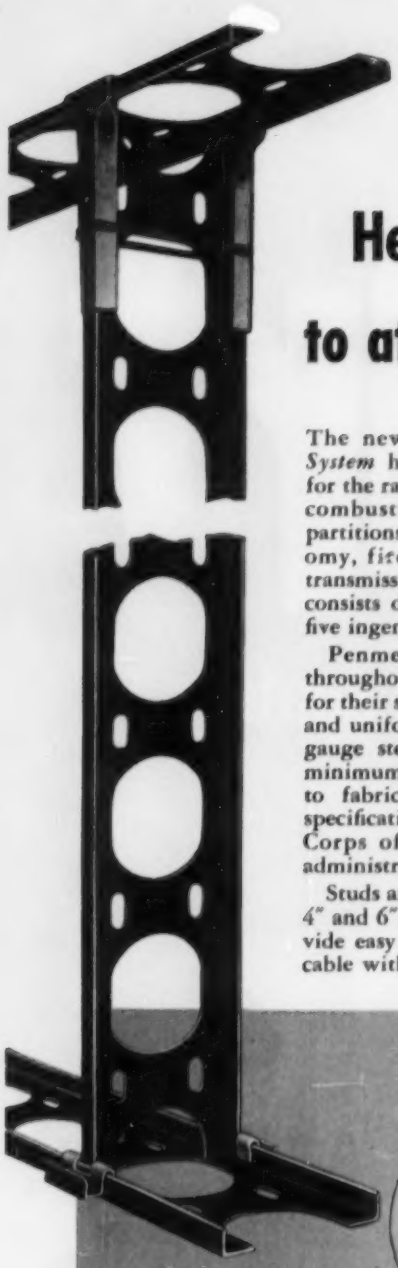

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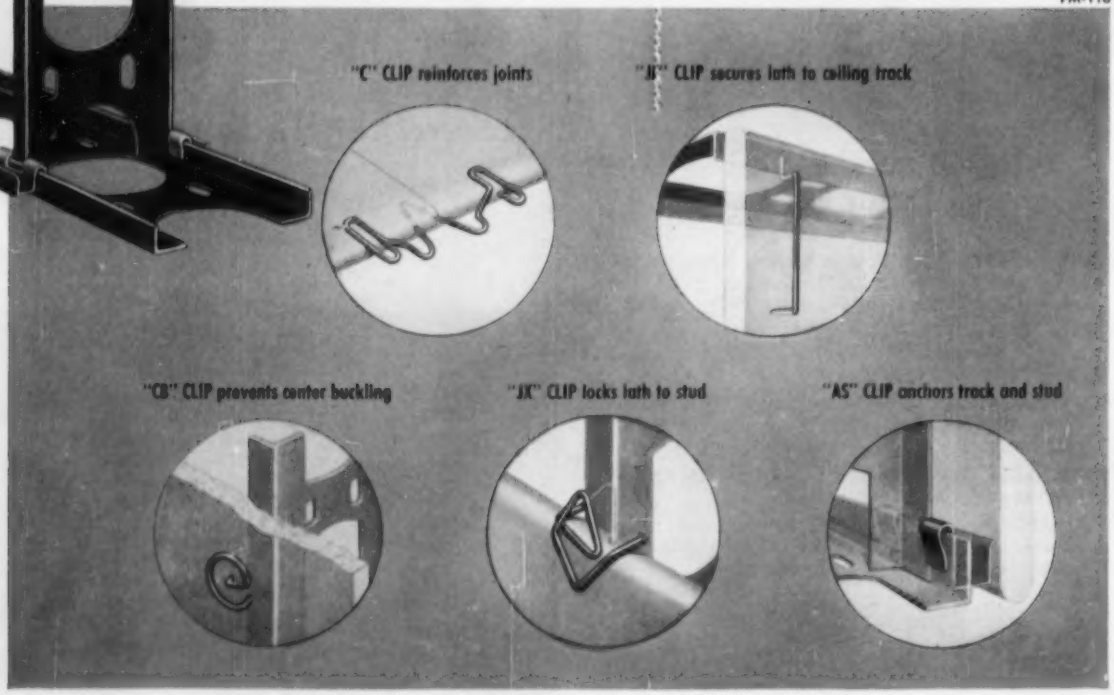
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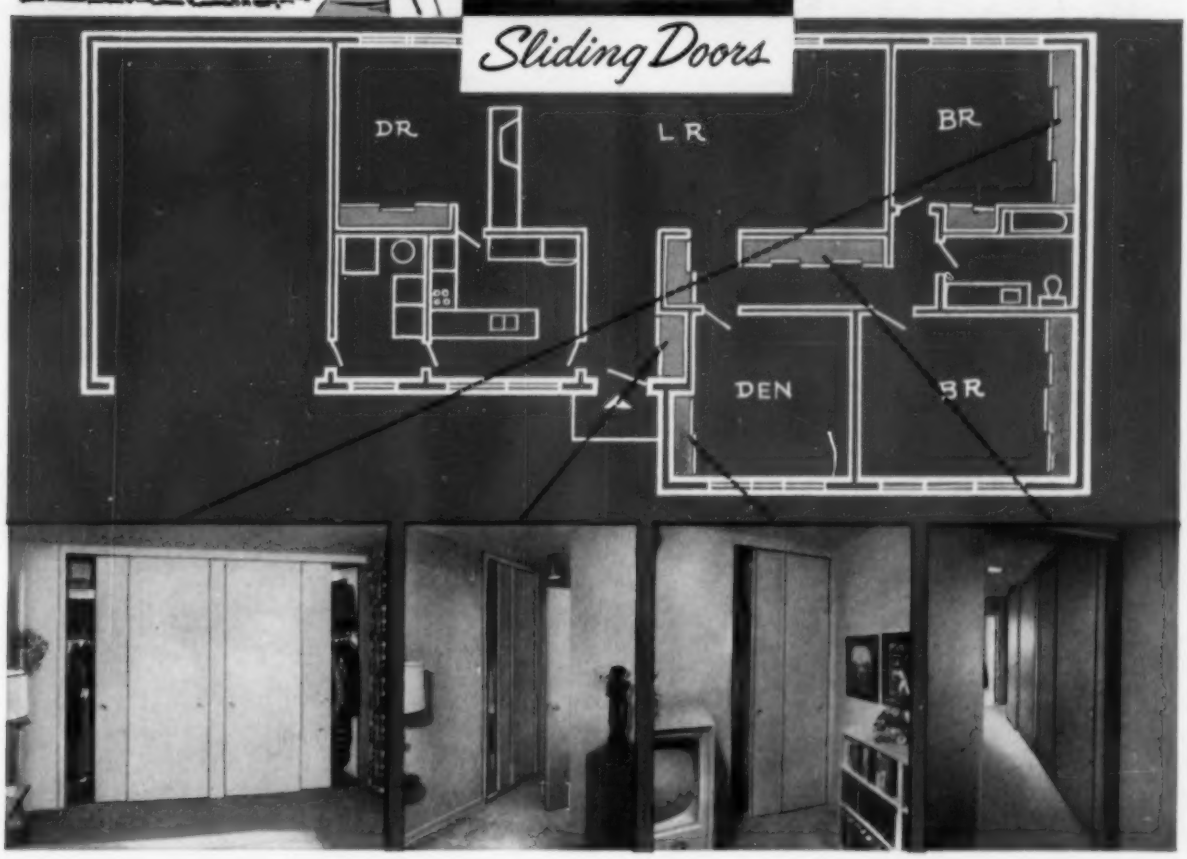


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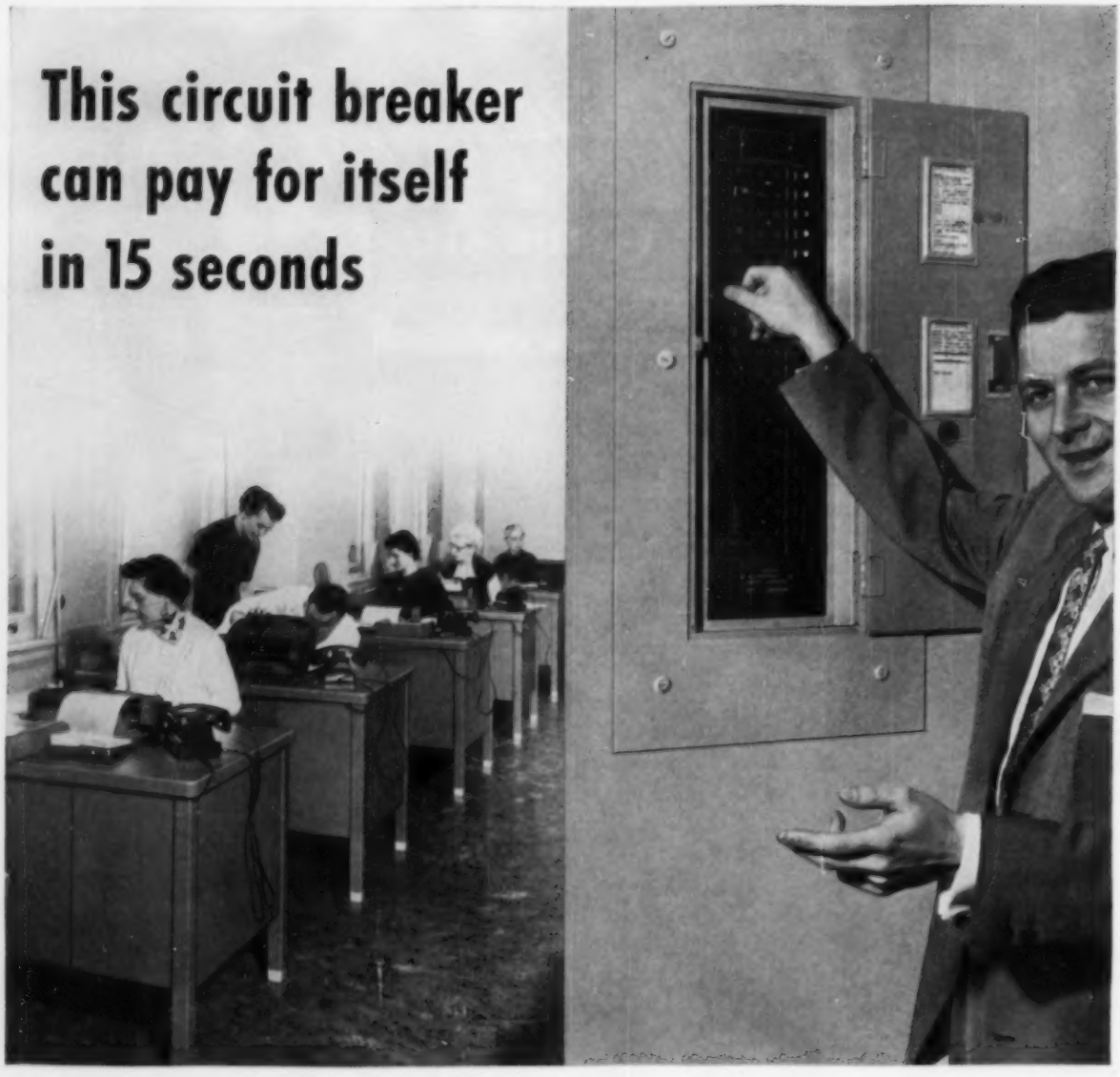

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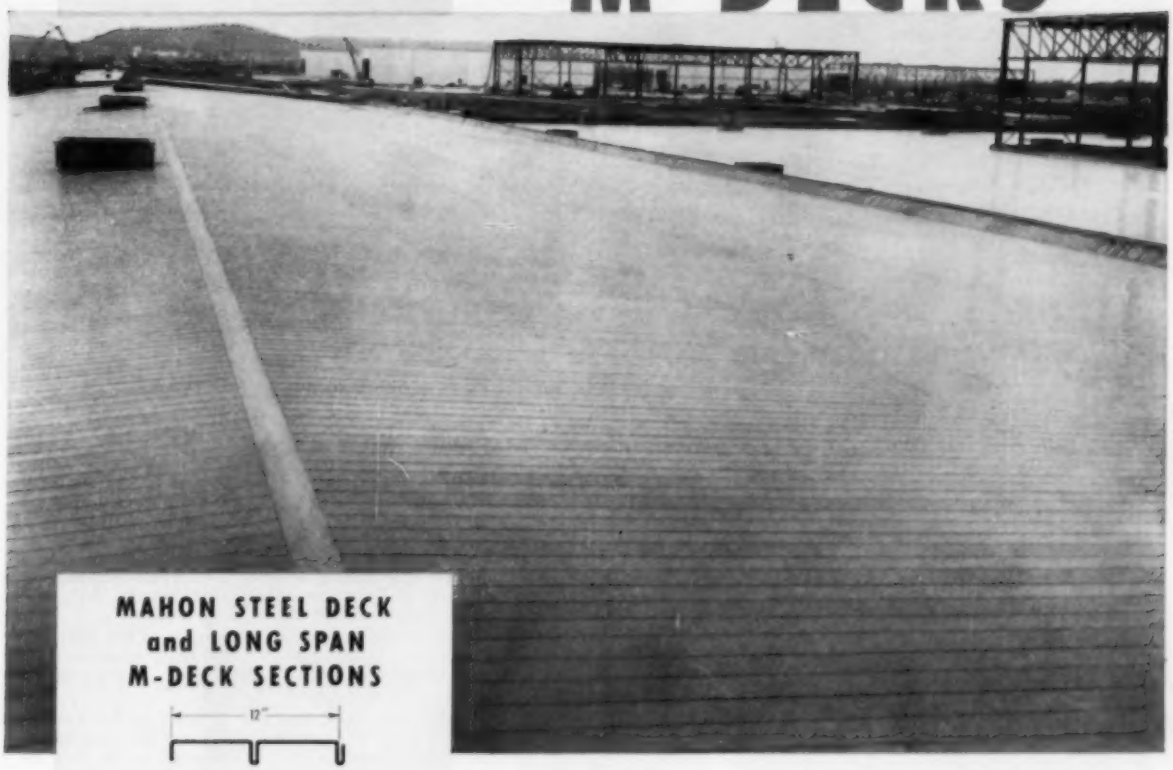
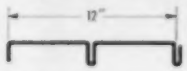


**MAHON STEEL DECK and LONG SPAN M-DECK SECTIONS**

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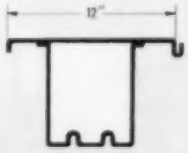
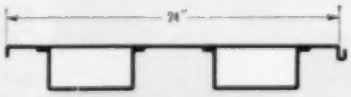
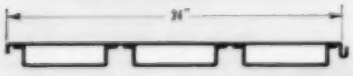



LONG SPAN M-DECK SECTION M1




LONG SPAN M-DECK SECTION M2

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# light and air to heal by,

SERIES 401

admitted through MARMET projected aluminum sash

*A typical Marmet hospital window installation.*

Marmet engineered sash and custom type aluminum windows provide unlimited scope in window treatment to implement architectural ingenuity. Made of the finest extruded aluminum alloy. Marmet windows are electrically welded with hairline mitres and constructed with the closest attention to details. Extra etching time in the world's largest dip tanks assures uniform satinized or alumilited finishing of striking beauty that will not discolor for the life of the window.

Series 401 projected windows used in the hospital above have wall sections 3/16" thick which assure maximum strength and rigidity . . . permit large glass areas to be projected.

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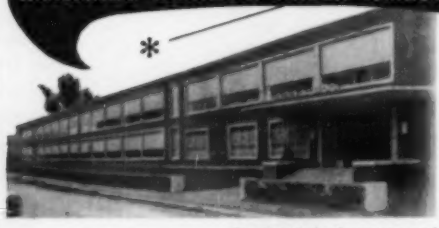
Marmet's precision aluminum fabricating is available in two series of ribbon windows, curtain wall, two architectural projected series, a custom line of windows, standard and custom entrances, glass block ventilators and aluminum doors. To assure successful execution of any plan . . . in window strength and lasting beauty . . . specify MARMET!

light and air to learn by admitted through MARMET aluminum ribbon windows



SERIES 200

*Linden School Malden, Mass. Architect Edmund L. Leeds & Associates Boston, Mass.*

For detailed information and specifications on the complete line of MARMET windows—consult Sweet's Catalog, File No. 17a . . . or write to the MARMET Corp. for Catalog 57-A.

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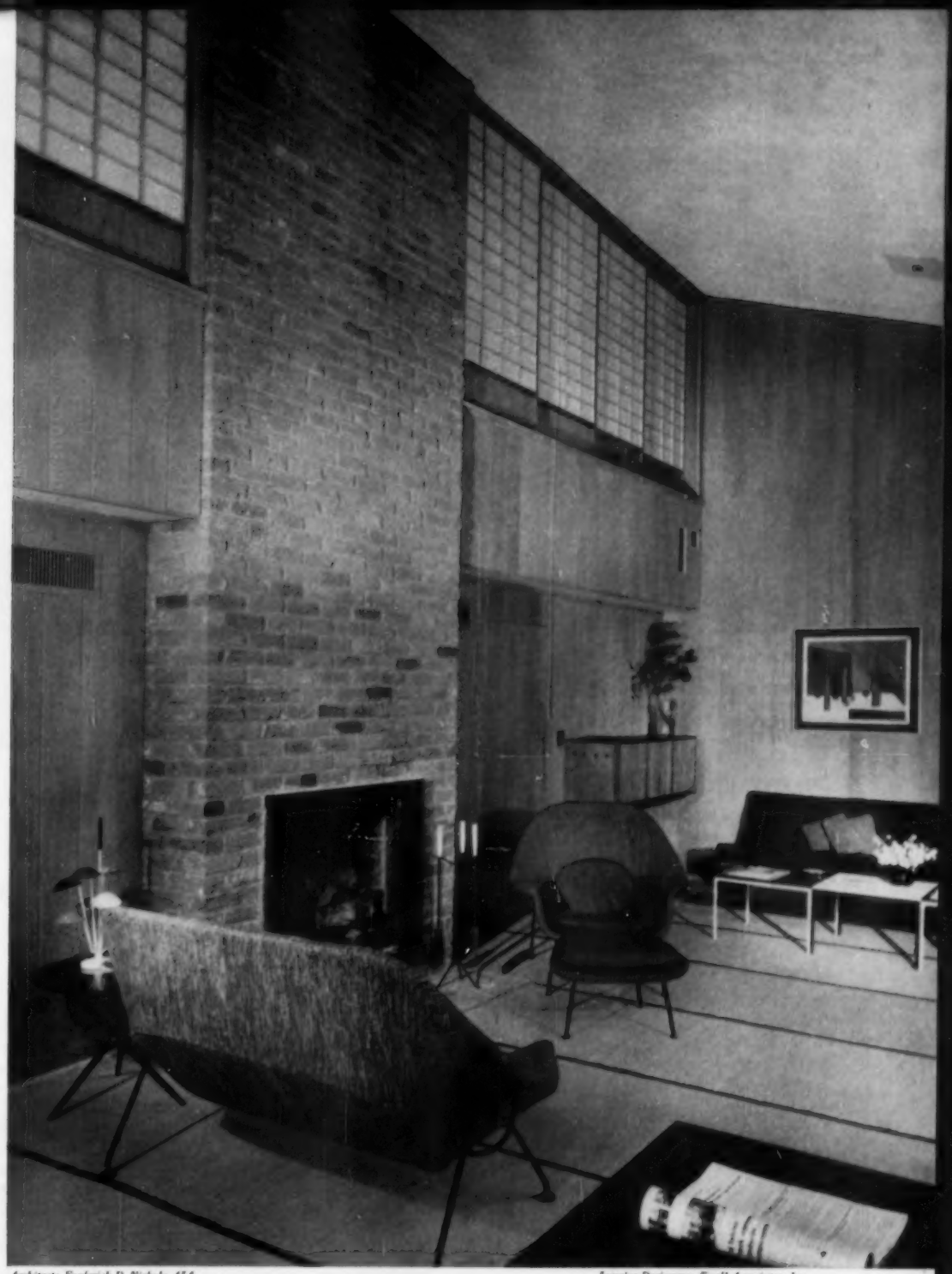

*Architect: Frederick D. Nichols, AIA* *Interior Designers: Knoll Associates, Inc.*

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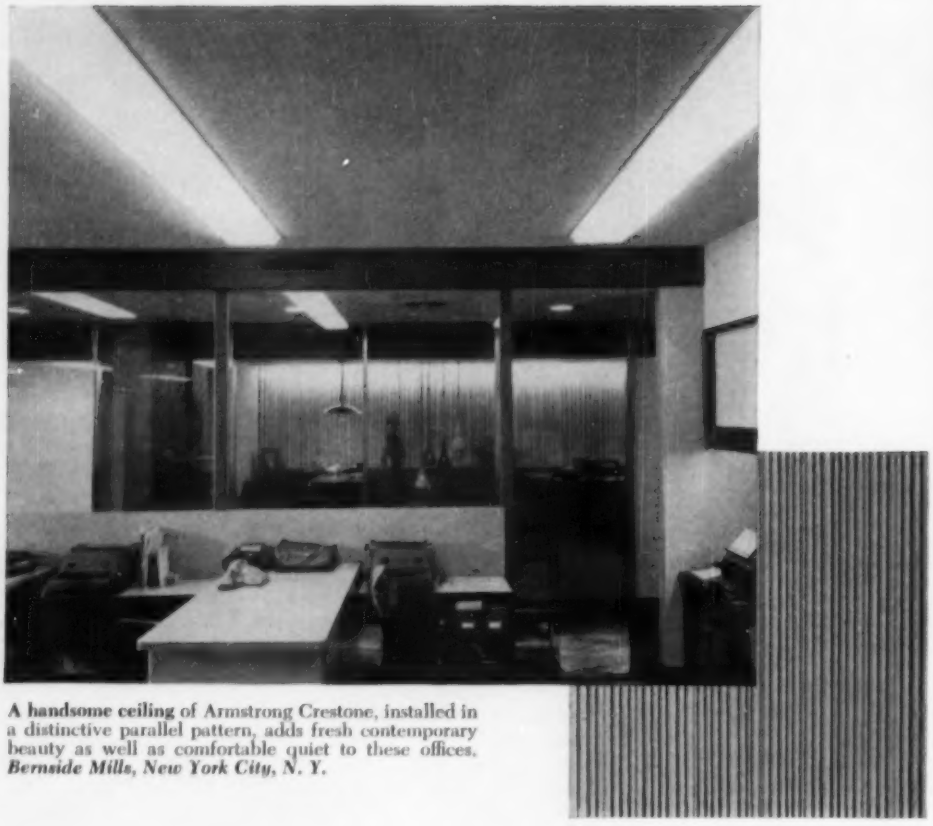
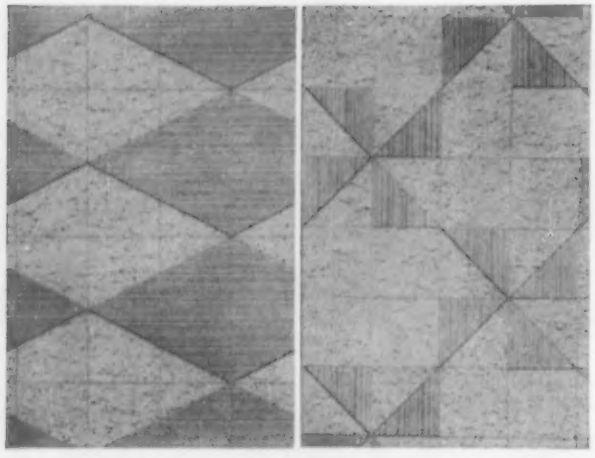
**The parquet design** of this church school ceiling is achieved with Crestone. Easy to maintain, Crestone can be cleaned or repainted without loss of efficiency. ***Community Reform Church, Manhasset, L. I., N. Y.***



**A handsome ceiling** of Armstrong Crestone, installed in a distinctive parallel pattern, adds fresh contemporary beauty as well as comfortable quiet to these offices. ***Bernside Mills, New York City, N. Y.***

## CRESTONE . . .

## How does this new acoustical material aid interior design?



**Attractive custom ceiling patterns** are easy to create with Crestone. This new material can be effectively used in combination with other textured acoustical tiles, such as Armstrong Travertone.

For years the ceiling has been a minor factor in interior design. Now a new kind of acoustical ceiling, Armstrong Crestone, provides a fresh, modern look in sound conditioning. Crestone's distinctive styling permits an unusually wide range of decorative ceiling possibilities.

Crestone is a mineral-fiber tile, striated to achieve a textured surface of contemporary beauty. The ridges and valleys on the face of each tile form strong directional lines of high light and shadow, allow great flexibility in creating interesting patterns.

Rated incombustible under Federal Specification SS-A-118b, Crestone meets even the strictest fire-safety codes. Installation is by conventional cementing or suspension methods. Crestone is finished with two coats of white paint and has an N.R.C. range of .55 to .65. It is available in 12″ x 12″, 12″ x 24″, 24″ x 24″, 23¾″ x 23¾″, and 23¾″ x 47¾″ sizes. All units are ⅝″ thick.

Get complete specifications on Crestone and the entire line of Armstrong sound-conditioning materials from your Armstrong Acoustical Contractor.

**For the free booklet,** "Design Concepts with Crestone," write Armstrong Cork Company, 4212 Rock Street, Lancaster, Pennsylvania.

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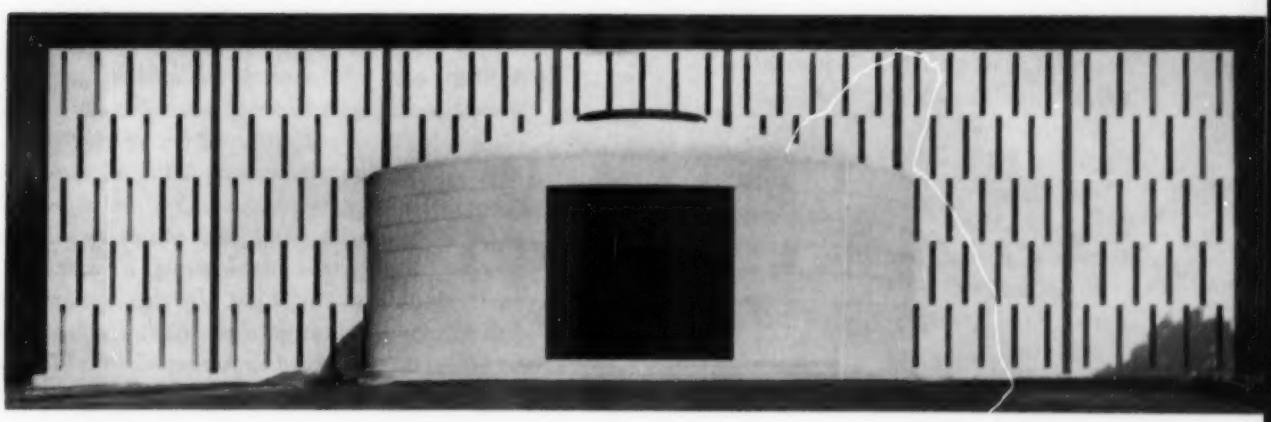
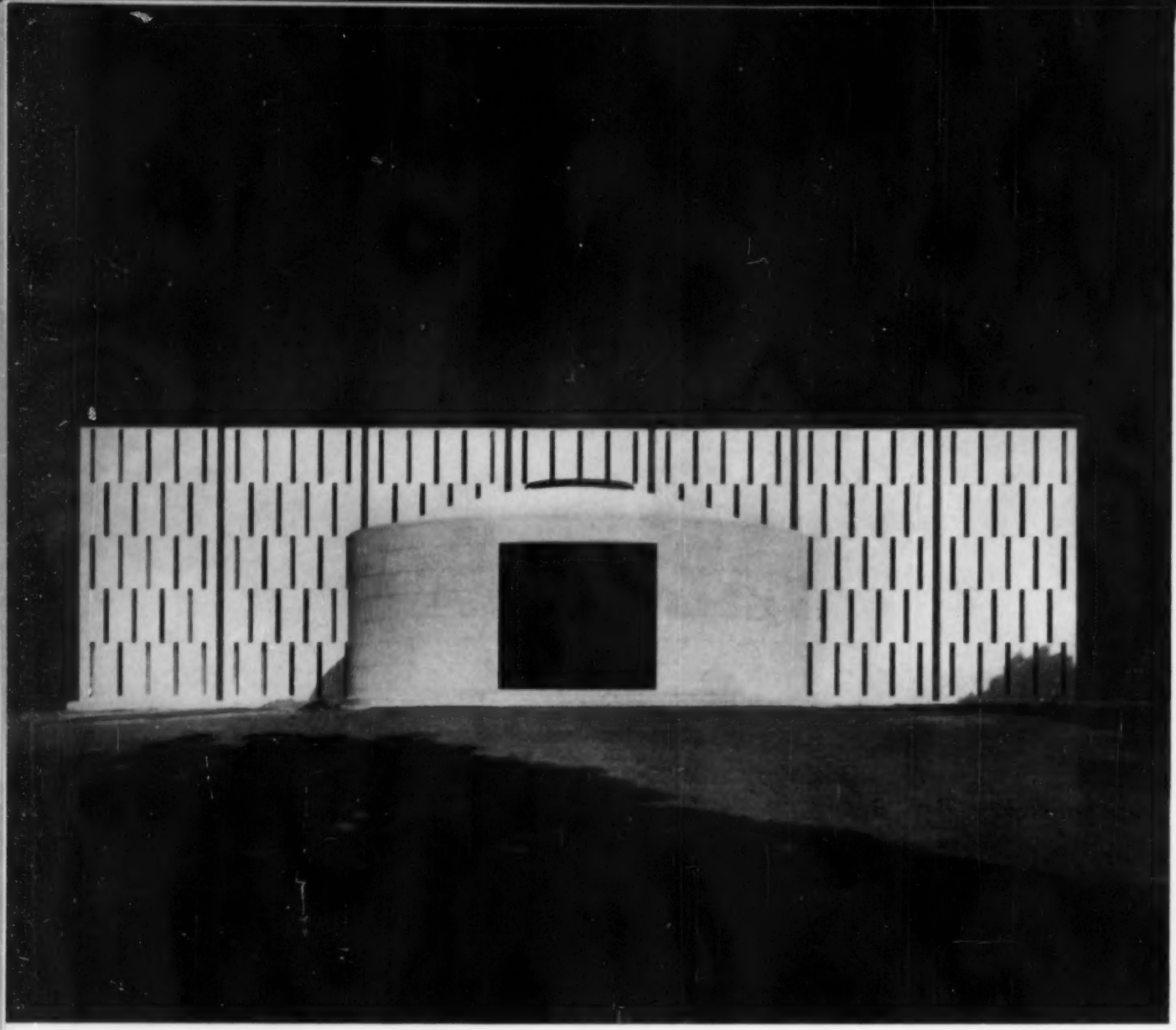
# RELIGIOUS BUILDINGS

BUILDING TYPES STUDY NUMBER 241

DECEMBER 1956 ARCHITECTURAL RECORD

## A PLACE OF WORSHIP IS A PLACE OF LIGHT





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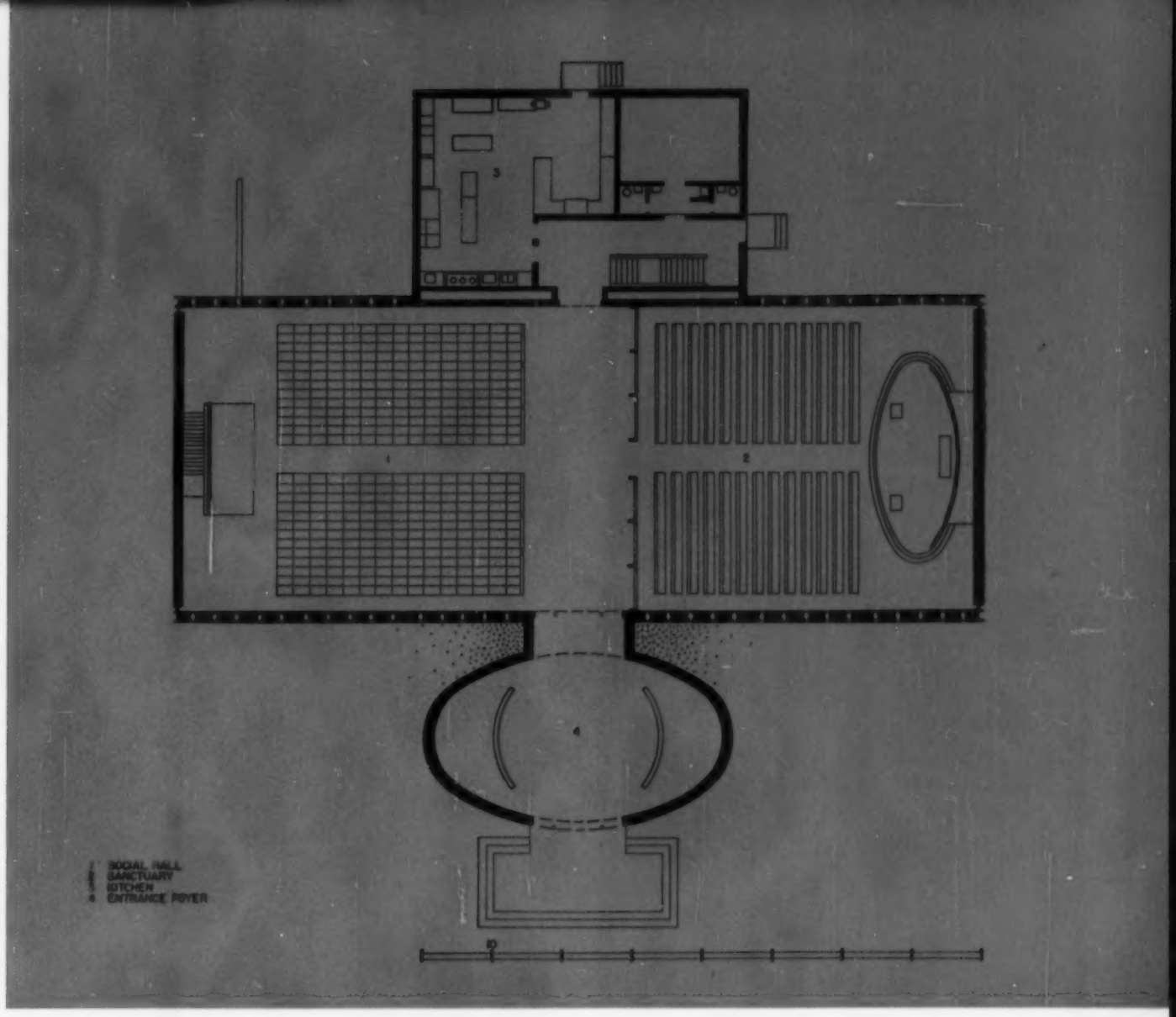
# * K. T. I. SYNAGOGUE, PORT CHESTER, N. Y.

***Philip Johnson, Architect***
***Marcello Mezzullo, Contractor***
***Eipel Engineering, Structural Engineers***
***Charles Middeleer, Landscape Architect***
***Ibram Lassaw, Sculpture***
***Richard Kelly, Lighting Consultant***
***John Johansen, Stained Glass Consultant***

* *Kneses Tifereth Israel*

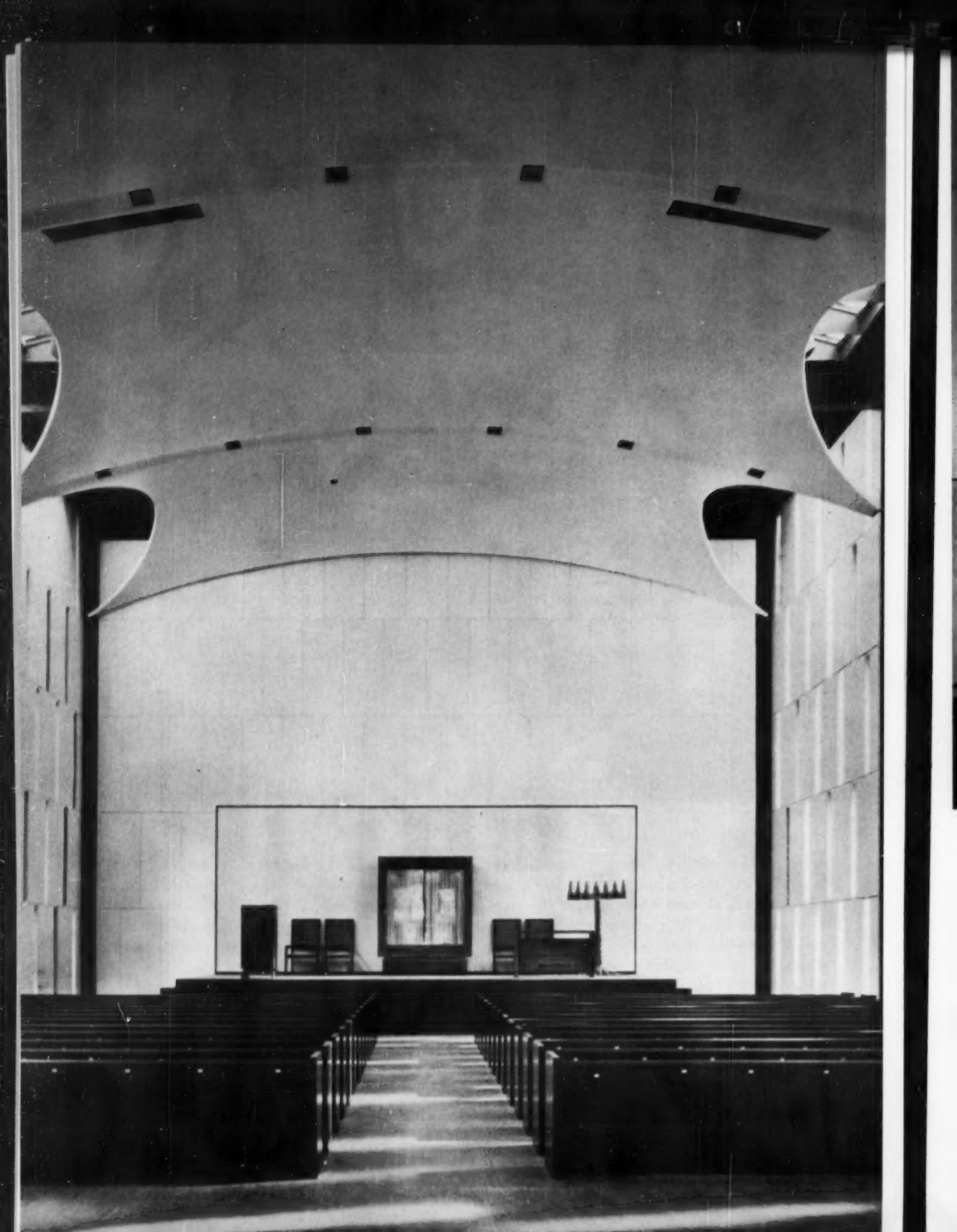
*The intellectual appeal of clear, structural articulation and the sensual delights inherent in precise craftsmanship are real, though limited, satisfactions. In a time which often seems to have restricted its reverence to these particulars it is especially rewarding to find a building which provides in addition some positive and fruitful answers to problems of approach and scale and color and light. In this synagogue a full range of human and structural requirements has been accepted and organized into an instructive and inspirational example.*

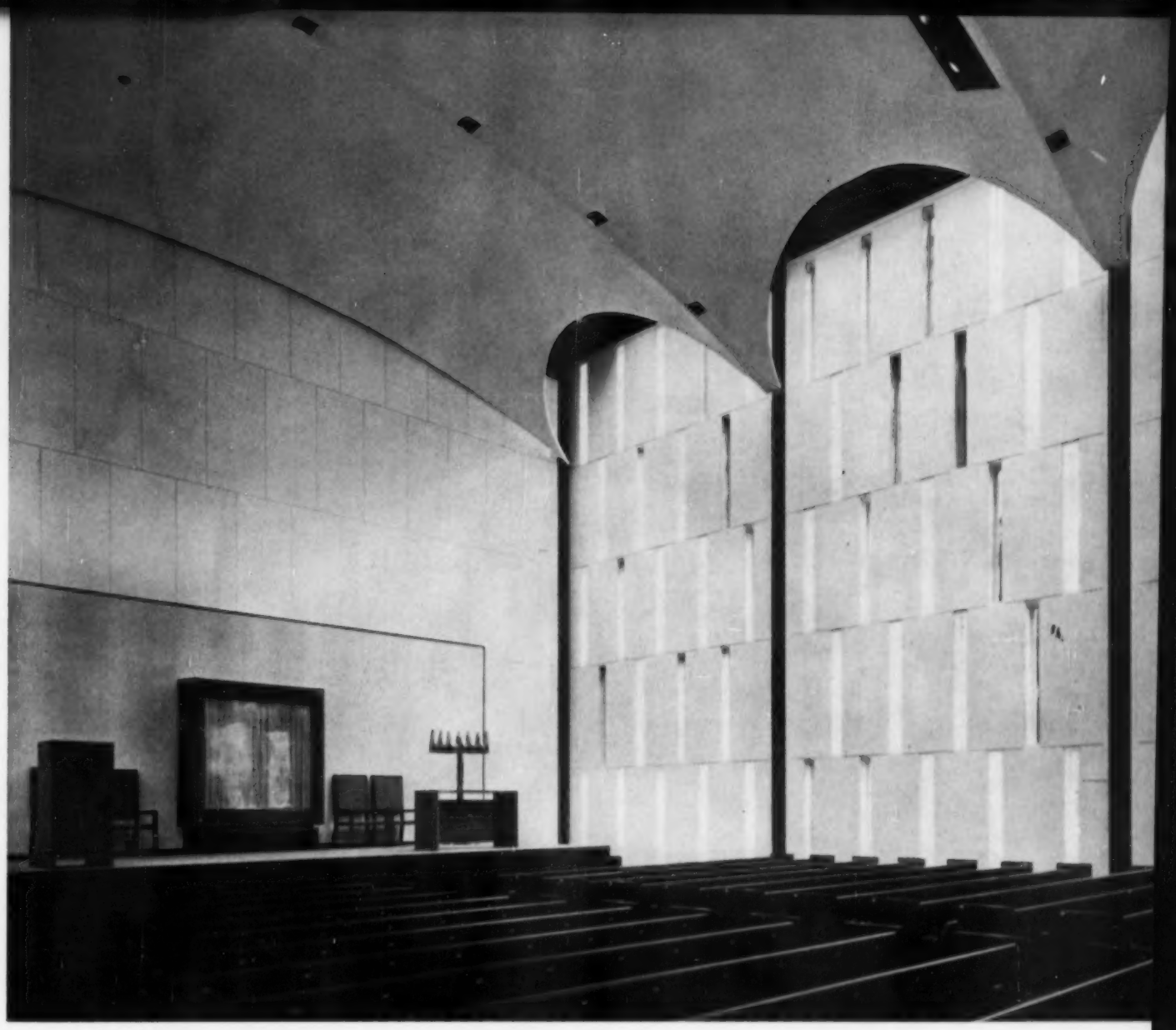



FROM THE APPROACH along Port Chester's King Street, the building is suddenly seen sitting high and very white against the trees. It is bigger than its pictures have suggested and this feeling is enhanced by the way in which the entrance drive, moving parallel to the south face of the building and then half-circling back to the doors, reveals progressively that essential relationship of the small oval entrance pavilion to the large rectilinear hall which has such powerful consequences in terms of scale.

This is a monumental building and its patterns and penetrations as well as its profiles are all arranged to make it so. The panels are just over the height of a man and they, rather than the openings, afford the kind of human dimensional identification necessary to the sense of bigness which is achieved when they are multiplied into five ascending tiers.

From the first this building is revealed as an accomplished exercise in scale and the conviction grows as one moves from out under the sky through the large dark doors into the small compressive ellipse of the vestibule, and from there on into the expansive — almost explosive — space of a hall which seems higher than its thirty-seven feet. And light, which contributes in so many ways to scale, has





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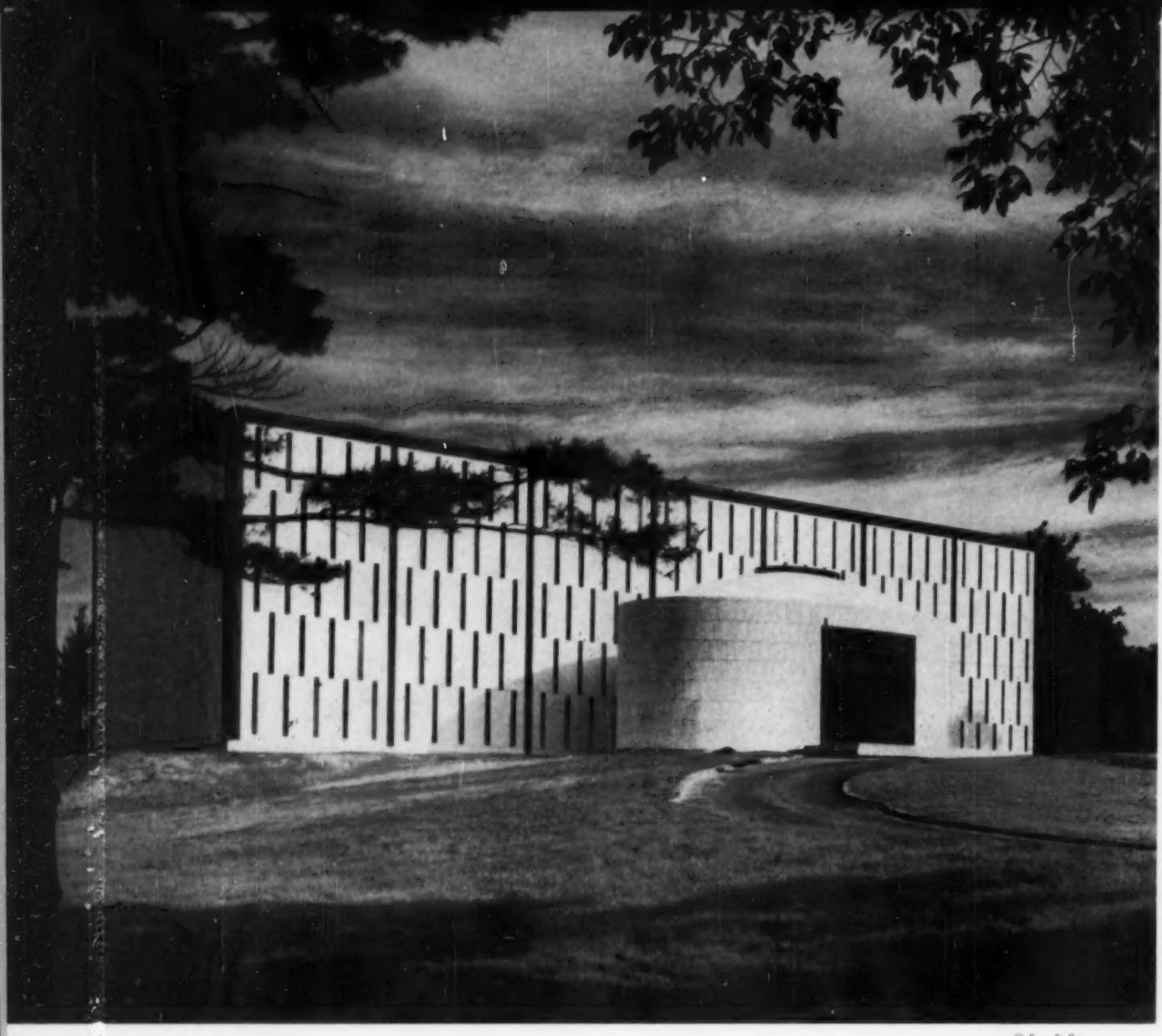
been manipulated equally well. The organization is the classic sequence of light to dark to light again in which the transition from outside to inside is prevented from robbing the windows of either dimension or brilliance. White — again inside — is a compelling impression but here it is subtly slashed from floor to ceiling and end to end with the Joseph's coat palette of the stained glass light slits. The colors have great clarity. Each is used separately in a single slit and there are just enough clear panels to fortify the lighter colors and to contrast the full richness of the dark reds and blues. The floor is a white-streaked, light gray asphalt tile; the straight rows of three hundred theater seats in the sanctuary are upholstered in a light silver gray which picks up just a little of the blues and reds from the glass. The bema is covered in gold colored carpeting and the screen behind it is clad in a metallic white acoustic cloth.

Across the middle, dividing the sanctuary and the social areas, are the parallel lines of eight-foot partitions which, framed in aluminum and steel braced, are bolted to the floor for easy removal on the High Holidays when over 1000 must be accommodated. Above all sail seven gently curving suspended vaults of plaster, giving a particular sense of containment to this space through their spe-



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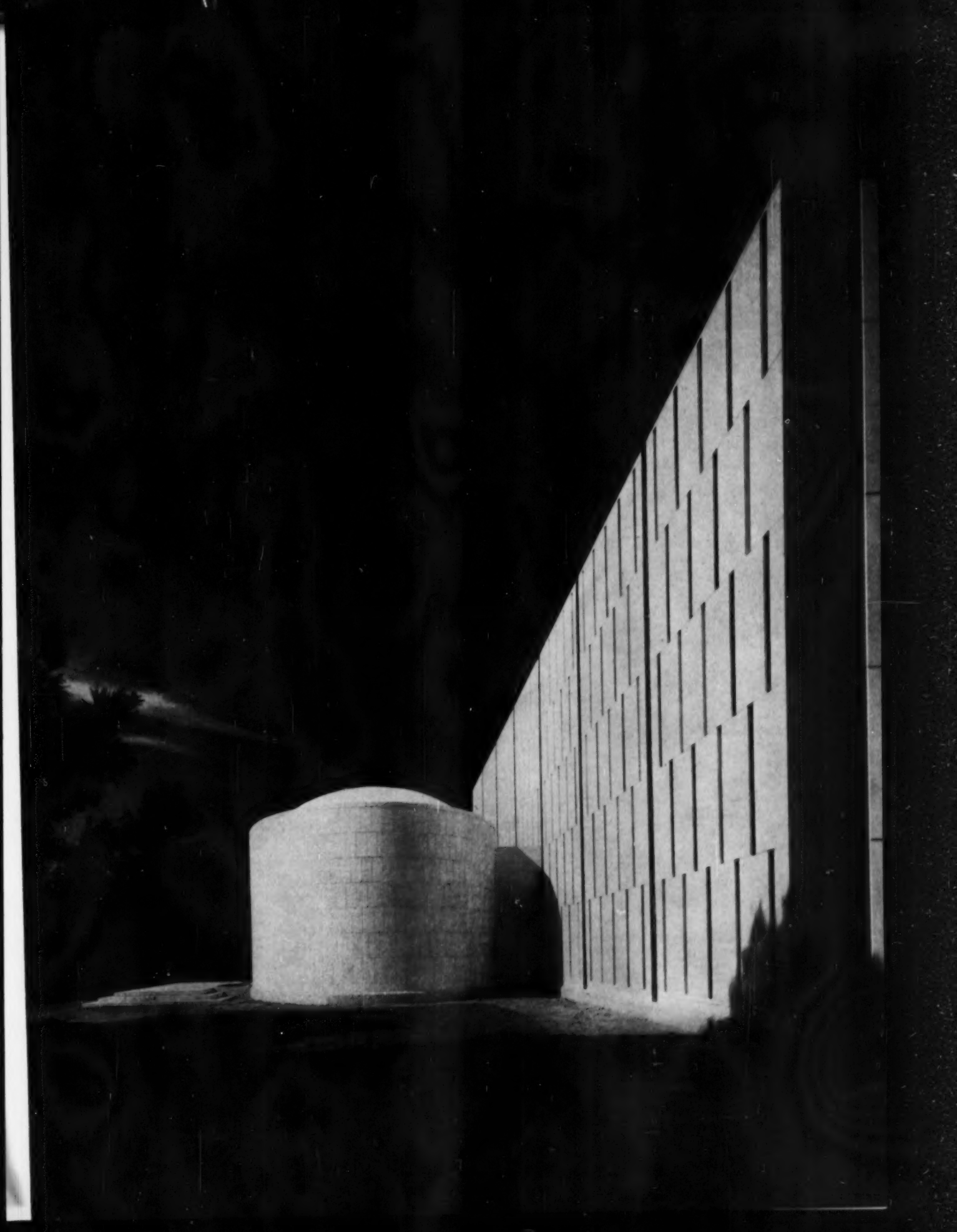
cial ability to modulate the daylight and serving themselves as both light sources and baffles. In each rib are the direct downlights — six dark piercings when unlit, and only partially concealed behind the sail's incurving sides are the dimmer-controlled lights which, directed toward the sidewalls, let the building glow at night like the "box of jewels" that had been promised even in its preliminary planning (ARCHITECTURAL RECORD, June 1955).

Perhaps only in the piercing of the plaster canopies does one find anything out of harmony in this inspirational space and even here it is difficult to find fault. The downlights and spotlights which undeniably remove some of the free-floating quality of the ceiling are nevertheless essential to the equally important control of illumination.

Here the architect has chosen the more difficult and more commendable path. He has been willing to admit into a kind of formal purity — even at the risk of its partial dilution — the means of a larger satisfaction. This may well be the most significant story of this rewarding building. To a structural system of great precision and beautiful proportions has been added a concern for light, and color, and the way people use and experience buildings: with *all* their senses *and* their intellects.



# On Getting Good Architecture

BY MARVIN HALVERSON

**Executive Director, Department of Worship and the Arts, National Council of Churches**

HOW TO GET good architecture for the church is not an academic question. More church buildings are being erected than ever before and there is every prospect that the tempo of construction will increase. In being concerned with good architecture for the church, therefore, we are not dealing with a hypothetical issue. We are faced with immediate concerns — construction today which should have architectural and religious validity for tomorrow.

My interest in good architecture for the church derives from my concern that the Church truly witness its faith in the 20th century. While the Church has made enormous efforts in education, in social action, in psychology and pastoral care, the Church has been negligent in the arts and in worship.

Because we have allowed our best traditions in worship to decay and because our tradition with respect to the arts has been one of suspicion, Protestants, at least, have not had a living tradition on which to draw. Fortunately, growing interest in the arts and worship holds promise of renewal in the future. But these are years in which fateful decisions influencing future generations are being made. Although I do not write as a professional in architecture and the allied arts, I write out of a conviction that new insights in worship and the arts are already available to us. I write out of some awareness of the new directions in Christian thought and out of a concern that church architecture not shadow the past but anticipate the future.

Unfortunately, we are burdened in the churches with a baleful legacy of misunderstanding, romanticism, and ignorance about the question of architecture for the church. As far as I can recall, my instruction in one of the country's leading centers of theological training never dealt with the problem except insofar as we were led to believe that in the interests of worship the Congregational churches, for whose ministry we were preparing, should look to Episcopal churches as their architectural ideal. We were nurtured in the belief there was a "holy" style for the church and a "secular" style suitable for a factory or a school or even a home.

### Double standard architecture

But one of the basic problems which confronts a local church planning to erect a new building is the breach between architecture for the church and architecture for the rest of society. The hiatus between architecture for the church and architecture for other institutions and groups in society exposes the shallowness of our understanding of the Gospel and its relevance to all areas of our common life and all realms of society. The continuing penchant among many churches for Gothic and Renaissance denies their assertion that Christianity has significance for all aspects of man's life. It is an architectural denial of the meaning of the Incarnation and the belief that God continues to speak his Word in the language of each new age.

The failure to face architectural facts started in the 19th century. Soon after the Industrial Revolution and the emergence of new technological devices, eclecticism commenced to exert its influence. By returning to the past we shall be saved. The Oxford movement in England and the Cambridge Camden Society with its ritual and ceremonial concerns spurred the return to the past. The Gothic "style" came to be considered the only architecture consonant with the spiritual meanings perceived in the restoration of pre-Reformation ceremonial and ritual.

### The Gothic mask

The early Victorians covered the machine in their shame. Perhaps they confused the ruthlessness of 19th-century industrial society with the new techniques and the new materials — concrete, cast iron, and later, steel. At any rate, it was not only the churches which were designed as miniature Gothic cathedrals, but factories, warehouses, and railroad stations were made to appear like medieval castles, fortifications, and cathedrals. The revival of Gothic architecture, I believe, enabled a people to ignore the injustices of a rapidly expanding empire by escaping romantically into a past which they neither understood nor could enter.

On the positive side, the vogue of Gothic in the Victorian era became a form of social protest by architects, poets, and seers. Their motivation was often religiously prophetic, but they failed to grapple with their age.

Despite the peril of appearing chauvinistic, I believe

# for the Church

there is an American tradition in architecture from which the church can learn about its failure in the past and its present opportunity. Although modern architecture is indebted to many 19th-century Europeans and reached a degree of maturity in 20th-century Europe, modern architecture is strikingly indebted to American influences. Lewis Mumford has suggested that the Yankee clipper ship and the American ax, and I would add, the New England frame meeting house, were forms which in their honest treatment of materials and their direct relationship to purpose were things of beauty. This tradition of integrity flowered again when from 1880 to 1893 the Loop in Chicago was the center of architectural development for the whole world. In a brief period of time the immense architectural possibilities in structural steel were explored. "Form follows function," which Louis Sullivan gleaned from Horatio Greenough and reiterated in his *Kindergarten Chats*, became the key to understanding the relationship between function and material, making possible — making even morally necessary — new architectural forms.

But while a Louis Sullivan was designing the office buildings, the warehouses and the factories which shaped modern architecture, the churches imitated the past. The now unfashionable sections of the same city are dotted with vast church buildings, vain monuments to middle-class ecclesiastical pride and reminders that the church failed to understand the religious and social meaning of their buildings and their time. For they designed their church buildings in terms of the past rather than the living present anticipating the future.

I understand it is one of the axioms of the architectural profession that architecture always tells the truth about the society in which it takes form. However much an age may try to disguise itself, its real nature is disclosed because architecture is the most social of all the arts. Architecture, therefore, is one of the most significant indices of the spiritual climate of an age. Among the best architects today one finds a concern for the social and religious significance of architecture that is not matched by the churches. These architects are concerned with the importance of good design in man's total life and particularly with the importance of good design for the church building and its allied arts. To these architects the restoration of spiritual health to present-day society involves the restoration to the church building of the symbolic and formative role which it once possessed in man's common life. No doubt many clergymen and churches would be surprised to learn that the best architects of our time, established ones and younger men launching their professional careers, are eager to design churches, and that many architectural students put their greatest effort and imaginative thought into church buildings. The best architectural talent is available to the churches. But Protestant churches for the most part have not faced as yet the fundamental task of freeing the architect from the fetters of style (whether it be Gothic, Renaissance, or modern) and giving the architect instead the ingredients for a sound exercise of his profession.

**Church function and church form**

The credo ascribed to Louis Sullivan, "Form follows function," points to the basic problem of good architecture for the Church. If this article were to have a text, it would be this: a church building which is effectively designed in terms of the function of the Church (and the particular congregation for which the building is erected) will have an appropriate form and thus the building may take on the nature of a symbol, saying to the world something of what the Church believes.

But before this can be achieved the Church must have a clearer understanding of its function, its vocation, in the world — in today's *and* tomorrow's world. In a sense architecture cannot reach its proper achievement until there has been a theological recovery within the Church of the meaning of the Church. Architecture is sometimes referred to as the queen of the arts and theology as the queen of sciences. They can never usurp each other's thrones, but unless their respective realms are in deep communication with each other, the one will thwart the other in the architecture and life of the Church. One of the important consequences of the ecumenical movement, represented institutionally in the World Council of Churches and in the National Council of Churches, is the growing awareness of the various traditions in the whole Church, and the rich

meanings in the Church's heritage and present life which point to its fundamental vocation and function in the world.

On the other hand, one of the difficulties of church architecture in the past has been frequently that architectural form has followed too closely an inadequately conceived function. An architect can design a building, to be sure, for a church needing units to house its diverse activities. While the architect must have data on religious education requirements and space needs for the various groups in the church, the architect's task demands more than this. Fundamentally, he must know the Church's *raison d'être*. This understanding of the Church's purpose must be discovered by the minister and the congregation. The architect cannot be the theologian for the Church, just as the minister and the congregation cannot be the architect. In fact, more architects should say "no" to a church until the church is ready to say "yes" to its responsibility of rethinking its faith and life and work. A wise and spiritually discerning architect can thereby be of inestimable service to the Church. His insistence on the Church fulfilling its responsibility can be the catalyst in the Church's reassessment of itself and rediscovery of the source of its life.

Nikolas Pevsner, in a speech a few years ago on the proposed new Coventry Cathedral, said, "the function of the Church building is to convert visitors into worshippers." A building does not have the power of converting a visitor into a Christian worshipper, perhaps, but a building can hinder and distort the worship of the Church. Worship is central to the life of the Church. It is the Church's primary function and what the Church has always done before it has done anything else. Long before there were church schools and youth programs and community service, long before these and the multitude of activities of a contemporary parish church, the Church engaged in corporate worship. For worship is the heart of the Church's life and work. In fact, it has been asserted that the entire program of religious education is preparation of young and old for participation in the corporate act of worshipping God. Corporate worship sums up all the activities and the meaning of the Church.

One of the distinctions between the Judaeo-Christian tradition, between the Church and eastern religions, is the existence of a community, a fellowship into which men enter. While personal devotion and private worship are not denied, worship in the Christian community is a communal act. Therefore a church building must be designed not for the worship of the individual alone with the Alone, but for a corporate fellowship called to a purpose in the world.

The building should be shaped by worship, and not worship by architecture. But for some time Protestants have been erecting buildings designed to achieve a "mood" in which an individual might have a "worship experience" rather than a setting for the activity of the Church in showing its Lord in worship before the world.

However, we are on the threshold of new insights into worship as a result of the ecumenical movement. We are entering a period of rediscovery of the Church similar to other great periods in the history of Christianity. As in those times of renewal of life, the Church is reviving its historical memories, trying to find what has made the various denominations worship in different ways, and discover the unity which is higher and deeper than the differences. Architecture for the Church building, particularly the location of the altar, is a key to perceiving our differences.

"In the course of history, the Church has evolved three different types of altar, the mysterious, the dramatic, the ministerial. There is the altar of the eastern Christians, the mysterious altar hidden behind veils or the iconastasis; and frequently the Church in the west has tried to make the altar partially mysterious by the use of the chancel-screen, the Lenten veil, the placing of the clergy and choir between the altar and the people. There is the dramatic altar, the altar of the baroque architects, of the Victorian ritualists, of numerous modern churches; an altar which by dramatic methods — ornament, the beauty of space, the manipulation of light and shadow — is made the showpiece of the church, and suggests to the worshipper the glory of the Sacrament. There is the ministerial altar, the holy table, a place of ministering, where our Lord perpetuates His ministry here on earth by the gift of heavenly food to the faithful gathered around it." (Addleshaw & Etchells, *The Architectural Setting of Anglican Worship*)

The mysterious altar is found without exception in Eastern Orthodox churches as well as in many of the Gothic buildings of Western Christianity. Eastern Orthodox churches continue to be constructed in such a way that the altar is hidden from the congregation. The dramatic altar is found in Baroque churches, whether they be Roman Catholic or Lutheran. And many contemporary Protestant church buildings are designed to make the altar spectacularly the object of attention in the Baroque manner. The ministerial altar is the Holy Table of the early Church and the Church of the first several centuries. In certain respects the Reformation was an attempt to restore the ministerial altar, the holy table.

**The table and the pulpit**

For example, as soon as the Reformation was established with some assurance of tenure, the reformed Church of England sought to accommodate its buildings to its new understanding of the Church. While practically no new church construction was undertaken until the last half of the 17th century, architectural changes were made in the existing buildings. The choir or chancel, which had been filled with stalls for monks or secular clergy, was cleared of its furniture and often the Table was moved forward or turned to extend lengthwise down the chancel. In the Book of Common Prayer order for Holy Communion at the point when the faithful were invited, "Ye that do truly and earnestly repent . . . draw near with faith," those who were to take communion came from the nave into the chancel and

gathered about the Lord's Table to celebrate as a community the communion of the Lord's Supper.

In other expressions of the Reformation, the entire building became the sanctuary as the belief in the priesthood of all believers extended participation in the liturgy to the entire people. The first church built in Scotland after the Reformation, St. Cuthbert's of Burntisland in 1592, constituted an attempt to reckon architecturally with the implications of the Reformation. The church was designed in the shape of a Greek cross, and the great pulpit was thrust from one of the arms of the cross into the heart of the congregation, and placed in front of it was a large Table, around which a host of persons might sit. Pulpit and Table, in classic Protestantism, are theologically and liturgically united, and early Protestantism was chiefly concerned that architecture reflect this basic conviction.

This tradition of pulpit and Table closely related continued for some time. In fact, there was a remarkable unity of architectural form in 18th-century colonial America. It arose out of a common understanding of the nature of the Church and its function. Thus one found Congregational churches in New England, Dutch Reformed churches in New York, Presbyterian churches in New Jersey, Lutheran churches in Pennsylvania, and Episcopal churches in Virginia, all having a large pulpit in the center and a Table of goodly proportions before it, emphasizing the centrality of the Word and the unity of the Word in its two forms of Scripture and Lord's Supper.

The architectural tradition of a meeting house for Protestant churches disappeared nearly a century ago. The great pulpit, designed in scale with the interior, shrank in the 19th century to a lectern, badly out of scale with the building, and placed on a platform or rostrum. The organ and choir, which in the meeting house were in the rear gallery, were moved to the dominating position in back of the generally tiny Table and spindly lectern. Out of this emerged the so-called Akron plan. Disastrous as it was architecturally, this much-derided pattern of church building was well designed for the church of its day. It was well planned for hearing a speaker and choir or quartet, for accommodating the extra crowds which would come to hear a striking address, and for the growing emphasis on religious instruction for young and old in the church rather than the home. The inadequacy of this kind of building for Protestantism, so apparent to us now, derived from the diminishing understanding of the full spiritual dimensions of the Church. It stands as an architectural reminder that before it builds the Church must think profoundly about itself and see its function in terms of the Bible, tradition, and the present world.

**The emptiness of vacuity**

Even so the Akron plan was designed for a church still nourished by evangelical roots. As these roots dried, however, there was confusion about the building and concern over its barrenness. With the increasing decay of preaching the room for worship became empty, not in Professor Tillich's conception of "holy emptiness," but the emptiness of vacuity. Protestant churches sought to fill the emptiness by copying church traditions other than their own and by introducing pictures, crosses. Rather than looking to their own past they found an ideal in the Episcopal Church, in its worship, in its music, and above all in its architecture, generally Gothic in character with an altar, choir stalls, and the Bible no longer on the pulpit but on a lectern on the opposite side of the chancel. During recent decades when Presbyterian, Congregational, Methodist, and Baptist churches were appropriating architectural arrangements from them, Episcopalians were not yet conscious of how recent and unjustified was their introduction of medieval altars and monastic choir arrangements into their parish churches.

Thus the churches in America today find themselves confronted with liturgical and theological anachronisms. They are attempting to worship in buildings that imply beliefs they do not hold and patterns of worship they do not practice. Fortunately, immense resources of new thinking about these matters are available from the leaders of the Church. The most recent Biblical, theological, and liturgical works are in remarkable agreement. The Church, they say, is a family, a people, a community, called into being to serve a purpose. And the nature of its life, its worship, its vocation and its function in the world demands altogether new approaches to worship and architecture. There is recognition of the uniqueness of each denominational tradition and at the same time a growing understanding of the basic unity of the Church.

**The free-standing altar**

It is one of the ironies of history that the liturgical movement in the Roman Catholic Church is seeking to recover the ministerial altar at a time when Protestants have been approaching the architectural setting for worship in ways that the fathers of the Reformation rejected. In the Roman Catholic Church, the liturgical movement, for instance, has rejected the medieval altar in favor of a free-standing altar, sometimes even resembling a table. Several new churches designed with the altar in the center imply that the same currents are at work as are found in the ecumenical movement. The central position of the altar suggests that the Church is a family gathered for its Holy Meal. Such a central plan, which many Roman Catholic churches are adopting, is not easily arranged for Protestants because for them the liturgical orientation is not to an altar alone but to an altar (Table) *and* a pulpit and a font or baptistry.

The architectural anachronisms of many Protestant church buildings will become even more apparent in the future as the confluence of Biblical, theological, and liturgical studies results in re-examination and renewal of worship. It has already commenced at the level of the World Council of Churches and in theological seminaries. When it becomes fully apparent, much of the church building of the last few decades will be seen to be

imitative, eclectic, and impressionistic.

Fortunately, there are several striking examples in the United States of serious reflection and fresh thinking by a local congregation engaged in an informed dialogue with the architect. Pietro Belluschi's design for the Presbyterian Church in Cottage Grove, Oregon, shows what can happen as a result of cooperation between minister, congregation, and architect. But this building is not to be imitated. The thorough exploration in the congregation of what it means to be a Church, what it means to belong to a particular tradition of the whole Church, and what it means for the Church to try to speak simply but directly in terms of our day — it is this exploration and reflection which should be emulated by all congregations preparing to erect a new house of worship. The building program then becomes not an expression of the Church's self-concern but the occasion of spiritual renewal.

A church building not only houses the public worship and related life of a religious community. It becomes a symbol to the secular community of what the Church is and what it believes. If architecture arises out of the faith and common life of the Church it can accentuate the religious apprehensions of the worshippers, reinforce the beliefs and memories which the Church shares. Manifestly, architecture cannot create faith, but it can express aspects of the faith which is given. A church building can express the transcendence and the immanence of God; it can suggest that the Church escapes from the world or that the Church lives in but not of the world; it can imply that the Church can speak only to those within it or that the Church speaks to the world it confronts.

The Judaeo-Christian tradition affirms that God is both transcendent and immanent. He is beyond space and time and cannot be confined to a particular place or moment, culture or age. On the other hand, God is present in the living Church, acting in the events of history and in our common life. In the Incarnation, the Church asserts, God entered our world at a particular place and time.

**Space is the symbol of God**

I believe that the transcendence and immanence of God can be expressed in church architecture today perhaps better than ever before. The concern of contemporary architects with space and the relationship and inter-penetration of interior and exterior space can be highly significant. Professor Tillich asserts that space is our most valid symbol of God. The God who cannot be contained or "spatialized" is represented by definition of space which covers man in his finitude. With today's building materials and techniques it is possible to achieve architectural space of symbolic power. I believe that the Church building of our day can best express God's transcendence of space and time as it also expresses the immanence of God in employing the space and time possibilities of modern architecture.

The plea, "I want a church building to look like a church," is not to be dismissed. A church building should be a symbol of the Church. This is the problem faced by the Christian movement since its inception. How can the Christian message be expressed afresh in each new age, in cultures other than our own? Yet the Christian faith which derives from the Incarnation must become incarnate in each person, in each generation. As the Christian faith becomes manifest in flesh and blood, so it must become manifest in stone, concrete, glass, and steel.

Architecture for the Church, for this reason, becomes the highest challenge which confronts an architect. Equipped with a congregation's knowledge of itself, its history, and its present life, the architect must design a building that suggests the Church is a people with a history, whose source of life is beyond history, and whose work is in the present — the now that will be the history of tomorrow — and whose destiny is beyond history and this life.

**The tent as a prototype**

Daniel Jenkins, a Congregational pastor and theologian, has offered the interesting thought that the tent is the prototype of the ideal building for the Church. In connection with its Hebrew antecedents it suggests a building for a people on the march, the Church ready to move on to new frontiers. Paul Schweikher's design for a Methodist church, which is reminiscent of a circular tent, represents an interesting fusion of the tent motif, American religious history, and present-day design. The new circular chapel at M.I.T. is also an appropriation of an ancient religious form, the circle. Rudolf Schwarz has explored the symbolism of the different forms of the church building. His doubt of the religious validity of the circle in terms of the Christian faith suggests that no form in itself will answer the problem of church design. The forms of architecture arise at the intersection of God's action toward man and man's response to God in community with his fellows. Architectural symbolism must arise from the Church's life and a building appropriate to it, rather than by imposing a "universal" symbolic form on architecture.

Do our church buildings imply that the Church seeks to escape from the world or that the Church lives in but not of the world? Do the buildings suggest the Church has a message for the world or only for itself? Several churches built during the last few years illustrate the problem that every Church and architect must confront. In St. Clement's at Alexandria, Virginia, a church was designed with an altar in the center and the congregation on opposite sides, the choir over the entrance supposedly uniting the two parts of the congregation. This building represents a serious attempt to recognize the Church as a family gathered about its Holy Table. But there are no windows. Overhead pinpoints of light provide illumination in what might be a catacomb of darkness. Economy of construction prompted the use of windowless exterior walls, but the symbolism becomes a matter of importance. In obedience to its faith, can a Church shut out all evidence of

the world of nature? It has been suggested that this particular building points to a truth about the Church in our world. Despite its present outward success, this argument states, the Church is forced to withdraw within itself, cutting itself off from the world in order to renew its life and strength, that at the right time it may go forth and transform the world.

In contrast, St. Stephen's Church in Columbus, Ohio, makes interesting use of a glass wall which relates the church to the world. Numerous churches have been built in which the worshippers look across the "altar" through clear glass windows into a forest or a mountain view. In such churches the ultimate focus is the world of nature. St. Stephen's resisted both the temptation to nature worship on the one hand and complete withdrawal from the world on the other. Through windows at one side a garden court may be seen, but worship is oriented to a Holy Table above which is suspended a cross. The glass wall is at the entrance to the church building. While the church is worshipping in a building, the world may catch a glimpse of the mystery which the Church declares in its worship to the world. The congregation on leaving the building is conscious of the world to which the Church must witness. This building was designed for the function of the Church in the modern world. But it symbolizes a community which exists in the world, serves the community in which it lives in the name of a higher community from which it derives its life, and points to our ultimate fulfillment in that higher community.

**A proper procedure**

1. Before an architect is selected the church should engage in a thorough study of itself. Study your denominational heritage, its beliefs about the Church, its tradition of worship, its attitude toward the arts, its overall understanding of its function in the world and in the community. Review this study in the light of the Bible. One of America's outstanding laymen, an industrialist who wants good architecture for the church, suggests that a congregation study the New Testament before it decides to build. In this way tradition and the Church's present life will be brought together under the creative judgment of God's disclosure.

2. Because the minister has had theological seminary training it should not be assumed that he does not need personally to engage in even more thorough study. Having been a Dean of Students and Director of Studies in a theological seminary for several years, I know how the seminaries have failed to give adequate training in these matters. Let the minister be the first to submit himself to a discipline of study.

3. The church should review its program in the light of the fresh insights of these studies. Questions such as these might be asked: should the church building be designed in terms of the existing pattern of the Church's life, or should the building anticipate the changes in worship, religious education, and fellowship which a thorough study of the Church may suggest are God's will.

4. Look, then, for the best architect you can find. Some of the great buildings for the Church have been designed by comparatively young architects of outstanding ability or by architects who have never before designed a church building. When the church is ready to retain an architect, several architects may be interviewed. Not the architect who agrees most readily with what predilections may remain within a church after a thorough study, but the architect who challenges the church to further thinking, may well be the architect who will serve the larger purpose of the Church. If the local church fulfills its responsibility of developing a clear conception of itself, its nature and its function, the truly imaginative architect will draw upon all his talents. The result may be a building for which future generations will rise up and call you blessed!

5. The *Handbook of Architectural Practice*, published by the American Institute of Architects, 1741 New York Ave., N.W., Washington, D. C., will be of great help to the Building Committee. Several shorter documents can be obtained in quantity for a few cents each and will insure understanding on the part of the local church of its relationship to the architect. These are: A.I.A. Document #225, *Principles of Professional Practice;* A.I.A. Document #300, The *Selection of an Architect;* and A.I.A. Document #177, *Details of Service to be Rendered and Schedule of Proper Charges for Services.*

6. After you have selected an architect, proceed to selection of a site. The architect's advice can save a local church from grievous errors. There may be circumstances which necessitate procuring a site before an architect is retained. In all events it is assumed that a local church works in cooperation with its appropriate denominational agencies and with the council of churches in planning and comity.

7. If the church's study suggests that art properly may be used in the church building, make adequate provision to use the work of living artists rather than mass-produced liturgical arts. Make certain that the architect's plans include all the liturgical items appropriate to your church's way of worship. Many otherwise fine buildings have been disfigured by the intrusion of crosses, candlesticks, communion vessels, fabrics, and other items that violate the integrity of the architect's work. The director of the nearest art museum can put the church and architect in touch with competent artists. As with architects, the best artists may not be the ones who aggressively seek a commission from the church. The best artists of our day, however, will respond with enthusiasm to an invitation to do work for the Church. Let us use them.

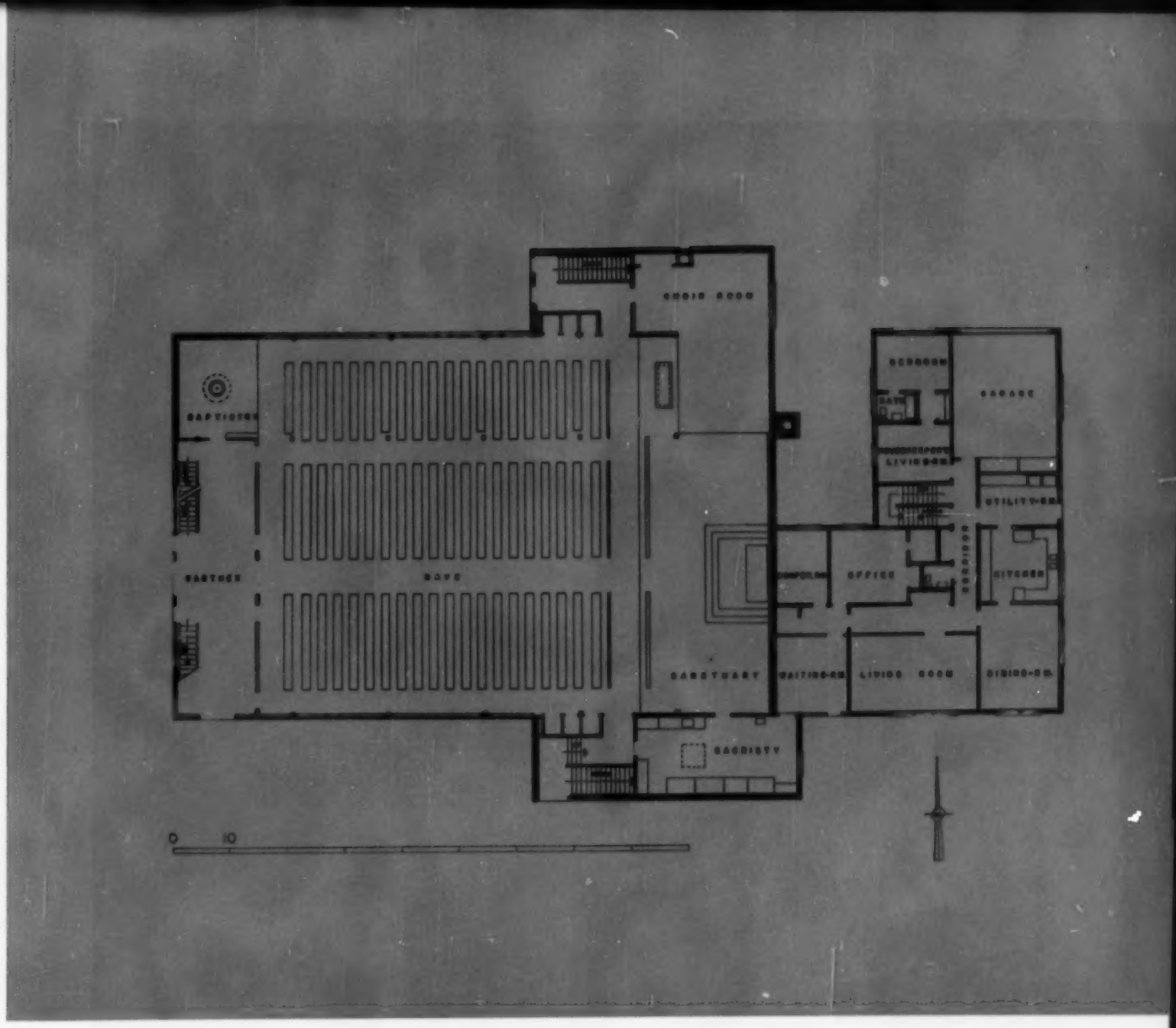
8. While Protestantism has been negligent in the visual arts, it has employed and often fostered the musical arts. The budget for a church building should include provision for a pipe organ. A church building is not complete for worship without one. Again the church should turn for competent advice, for instance, to the head of the organ department in a leading college or university.

William Wallin Studio

# ST. JOSEPH'S CHURCH, FT. ATKINSON, WIS.

***John J. Flad and Associates,***
***Architects***
***T. S. Willis, General Contractor***

*At eighty-eight cents a cubic foot and on a congested corner site these architects have been able to create for a traditional liturgy and a conventional program of requirements a building of many positive architectural achievements. Most dramatic of these is the enormous stained-glass mural which dominates the entrance face and which — particularly at night — provides a rich tapestry of light as the focus of an ensemble which inevitably reveals the harsh demands of a rigidly restricted budget, but achieves distinction nevertheless.*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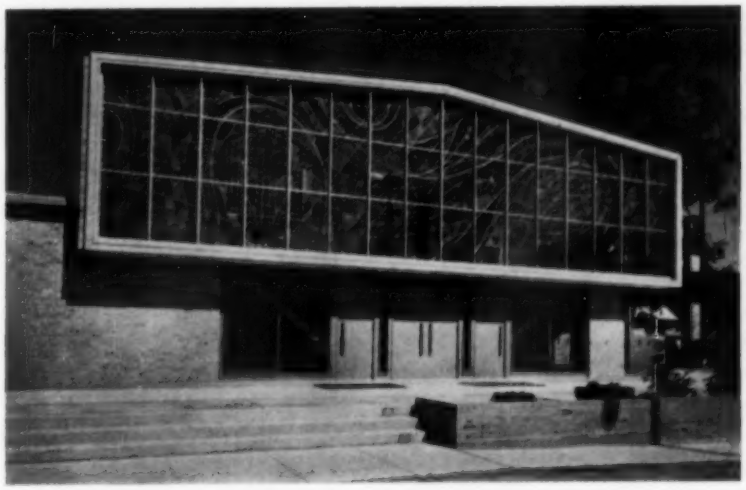
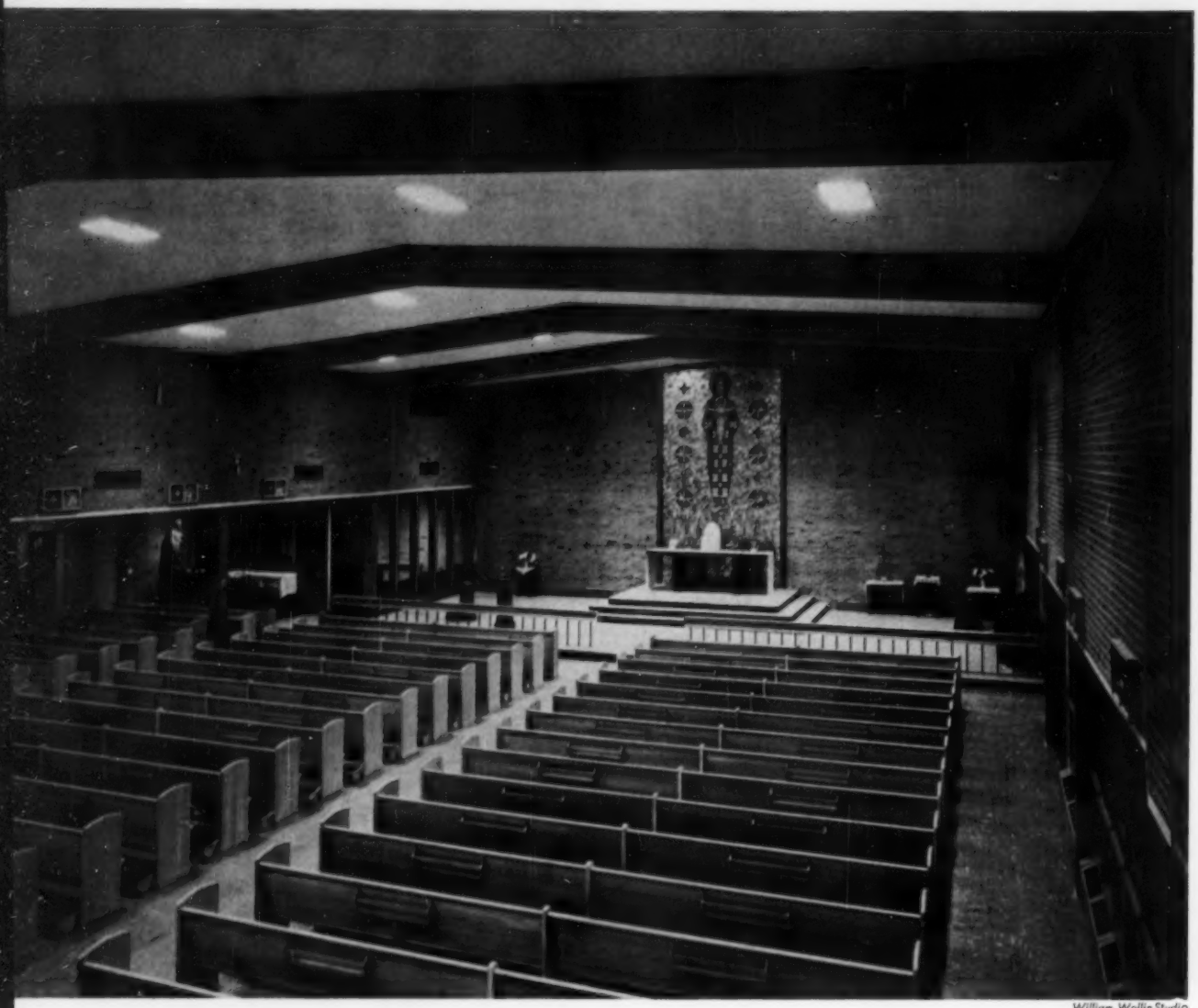




William Wollin Studio

NAVE, BALCONY, AND CHOIR can seat just over 700 on this site crowded with an existing two-story school and with the necessity of providing with the church a fairly elaborate rectory facility. Circulation between these elements was a primary problem and has been handled well along with the principal approach which is by means of an offset terrace.

Immediately off the narthex is a completely enclosed baptistery lighted through the low roof which, continuing over the side aisle, gives emphasis to the higher nave and acts as visual transition between church and school.

The principal material is a buff-range brick exposed throughout the interior and which — both inside and out — serves as a neutral background for the two principal color foci. Of these the great window tells its story in blues and reds with minor accents. It was designed by Burckhard and executed by the Esser Studio of Milwaukee, as was the altar mural, which was designed by Erhard Stoettner in Venetian glass tile mosaic.

All major materials are in their natural colors. Pews and trim are in birch, and the rectory uses redwood siding.

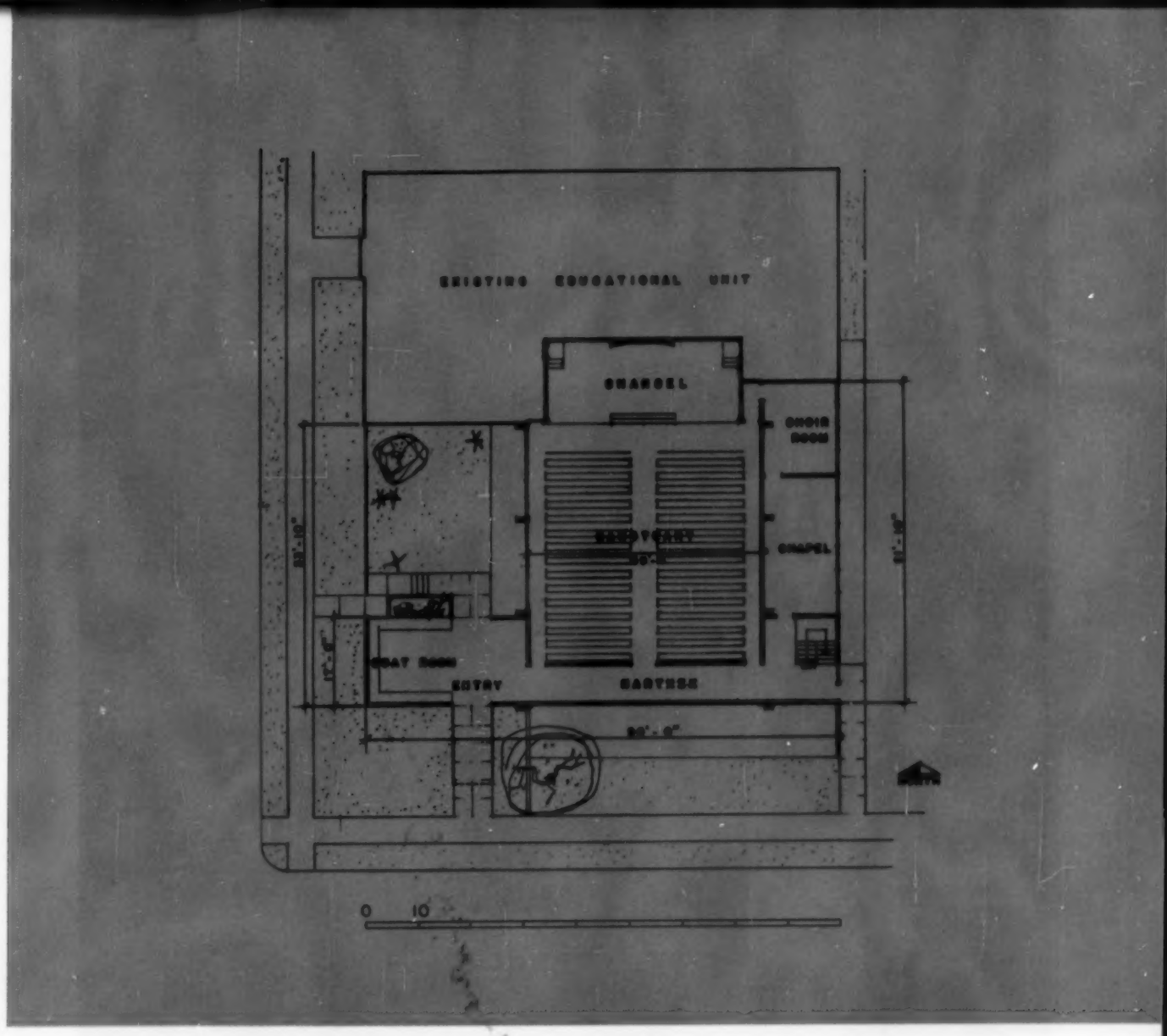
A large parish hall with adjacent lounge, meeting rooms, and kitchen occupies the entire basement level. Total cost of building was $295,000.

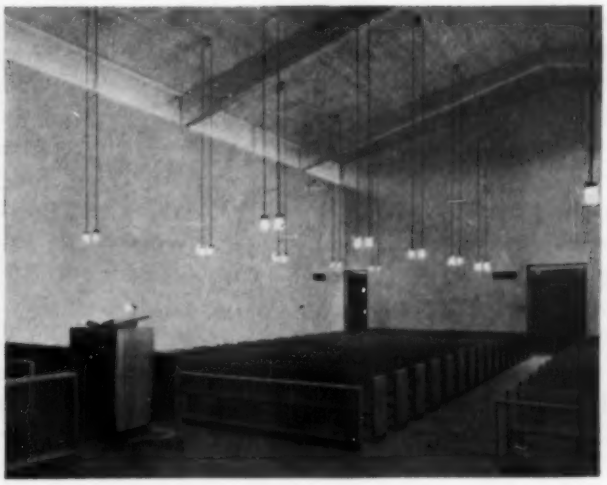
Dearborn-Massar

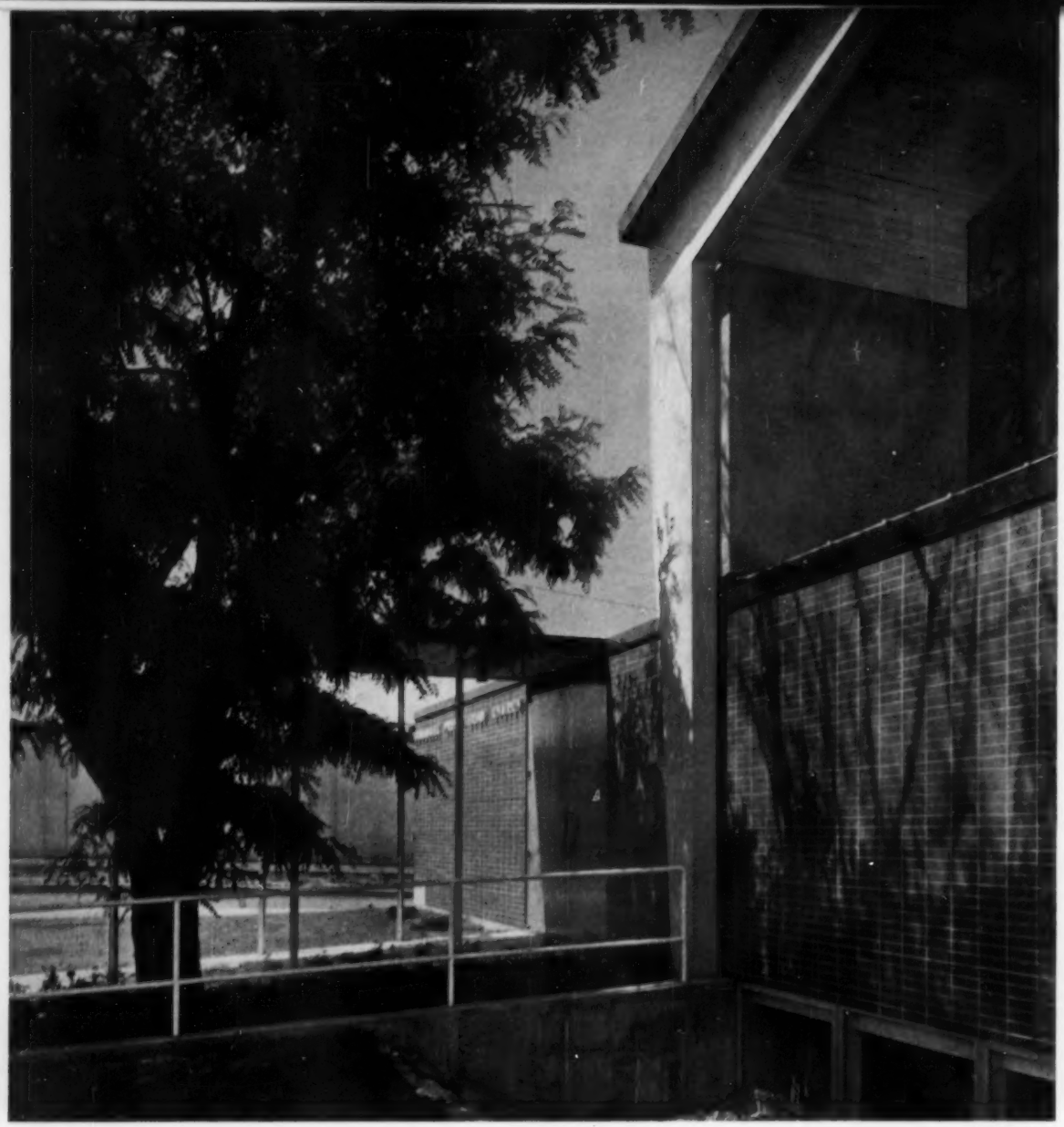
# EMMANUEL PRESBYTERIAN CHURCH, SPOKANE

***McClure & Adkinson,***
***Architects***
***Lyle C. Campbell,***
***Structural Engineer***
***Kendall Wood & Associates,***
***Mechanical Engineers***
***Joseph Doyle,***
***Electrical Engineer***

*Fine scale, the skillful use of a limited site, and a very positive expression of an invitation to withdrawal are the qualities which particularly recommended publication of this church. Of these the latter is almost unique today. Here a welcoming reach is made to the community through the covered entrance walk alongside the pleasantly placed tree and yet it is everywhere manifest that the community is being welcomed to withdraw in worship. Welcome and withdrawal are a difficult duality and in a small building are seldom achieved simultaneously.*


EXISTING EDUCATIONAL UNIT
CHANCEL
CHOIR ROOM
CHAPEL
ENTRY
NARTHEX
0 10

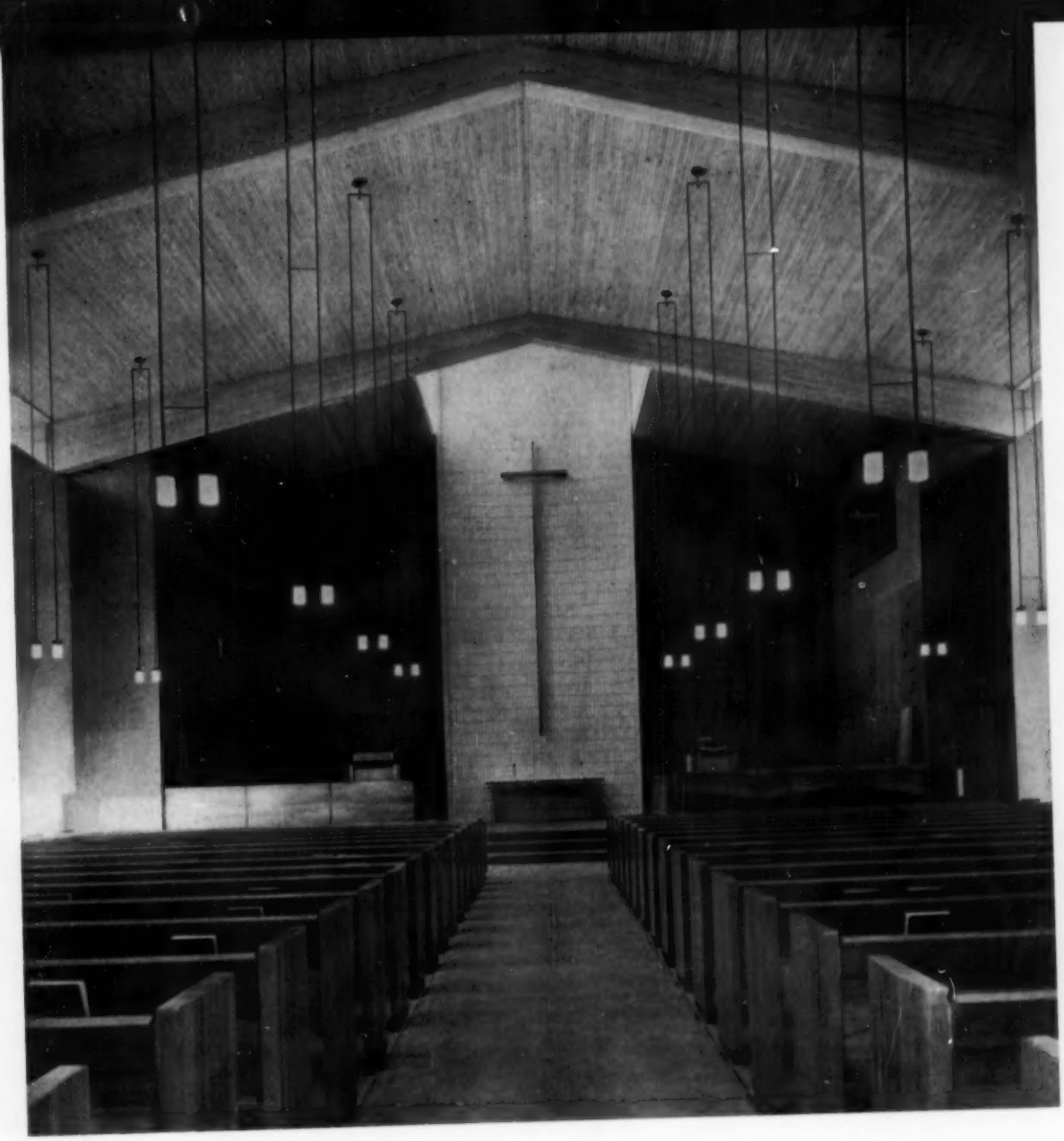


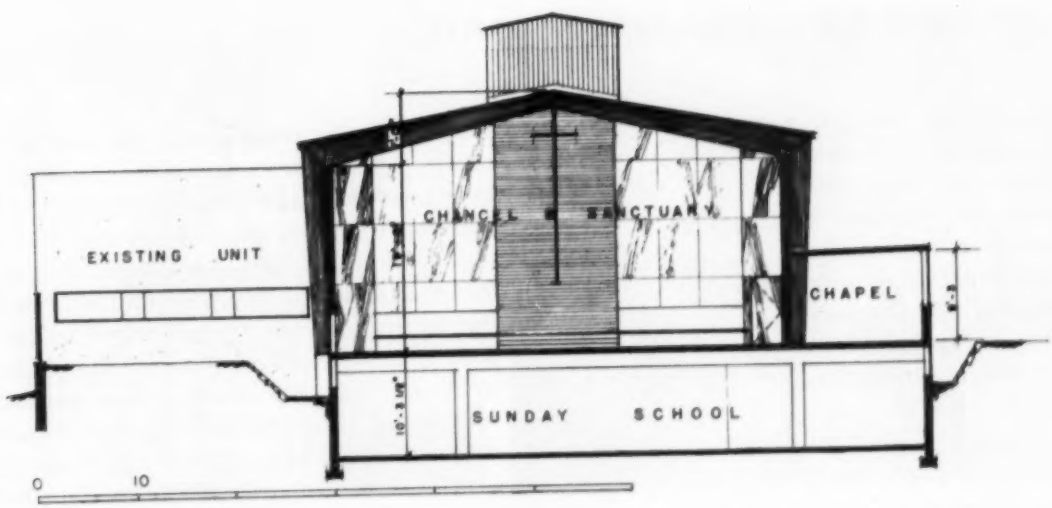


Dearborn-Massar

NO WINDOWS FACE THE STREET and once inside the natural light sources are arranged to enhance that sense of removal which is both theologically and sensuously effective. The hollowed recession of the first bay over the brick-screened, sky-lighted narthex contributes strongly to the visual pull and to the plastic participation of interior and exterior spaces. This recessed wall is clad in acid-treated copper and while for some there may be an overabundance of materials certainly no one would wish to delete this one which forms such a rich background for the white enamelled cross and which extends downward to form the interior narthex wall.

The program asked the architects for a sanctuary for 400, sympathetic to the already existing educational wing and within a hemmed in site. The side location of entry and coat area, which was in direct response to the property limitation, produces the useful court and partially contributes to the sense of retreat. Relationship of new and existing basement levels required the forward light well. Principal framing elements are the glue laminated arches. Exterior surfaces are brick, painted plaster and copper; interior repeats these plus walnut and asbestos cement panels, acoustic, ceramic and asphalt tile. All sanctuary furnishings were designed by the architects.






LATERAL SECTION

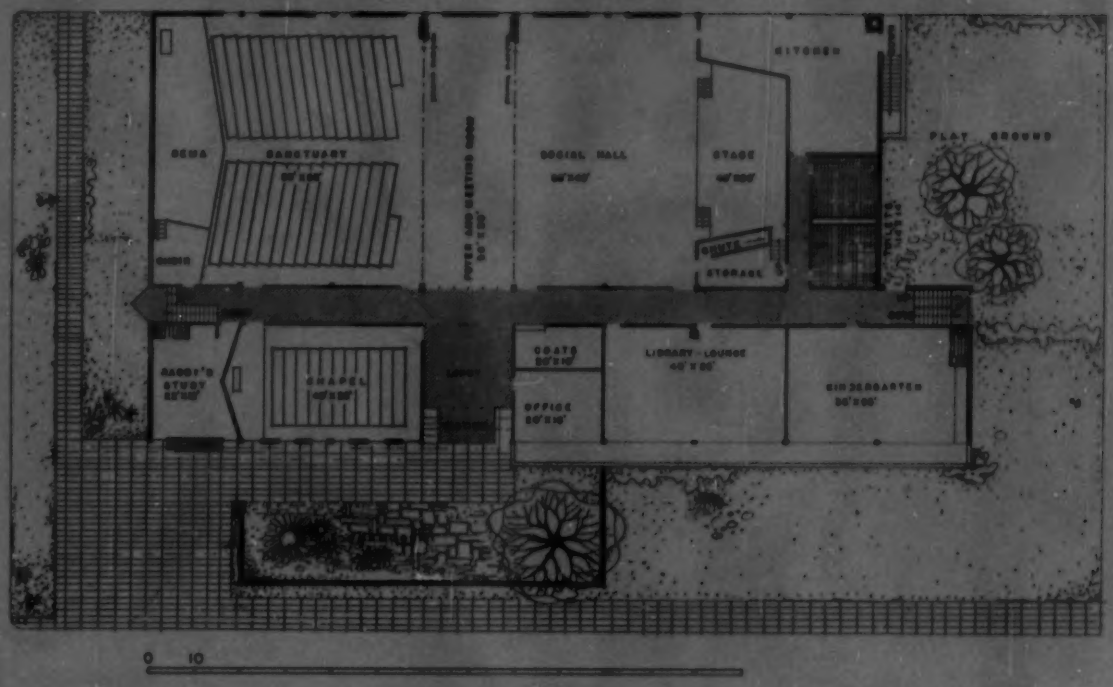
SCALE: 1/8" = 1'-0"

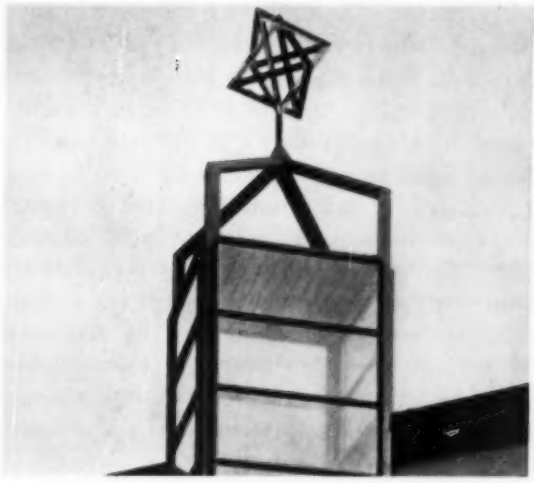
Hedrich-Blessing

# TEMPLE BETH EL, GARY, IND.

***Percival Goodman, Architect***
***Faioli, Blum & Yesselman, Structural Engineers***
***William Dusenbury, Mechanical Engineer***
***Gerometta Construction Co., General Contractors***
***Seymour Lipton, Sculptor***
***Hans Moller, Designer of ark curtain***

*Historically the synagogue in the west has been relatively free of strong traditions in architectural form which have made modern design for Christian worship a most exacting exercise. The architect of talent has been able generally to express the relationship of the Jewish Community to the general community and nowhere has this been done more clearly than in this synagogue which has been fashioned in steel against the background of a steelworking city. Especially clear is the arrangement for the three part function of worship, study and social gathering,*


KITCHEN
PLAY GROUND
SOCIAL HALL
STAGE
STORAGE
LIBRARY - LOUNGE
KINDERGARTEN
OFFICE
CHAPEL
0 10

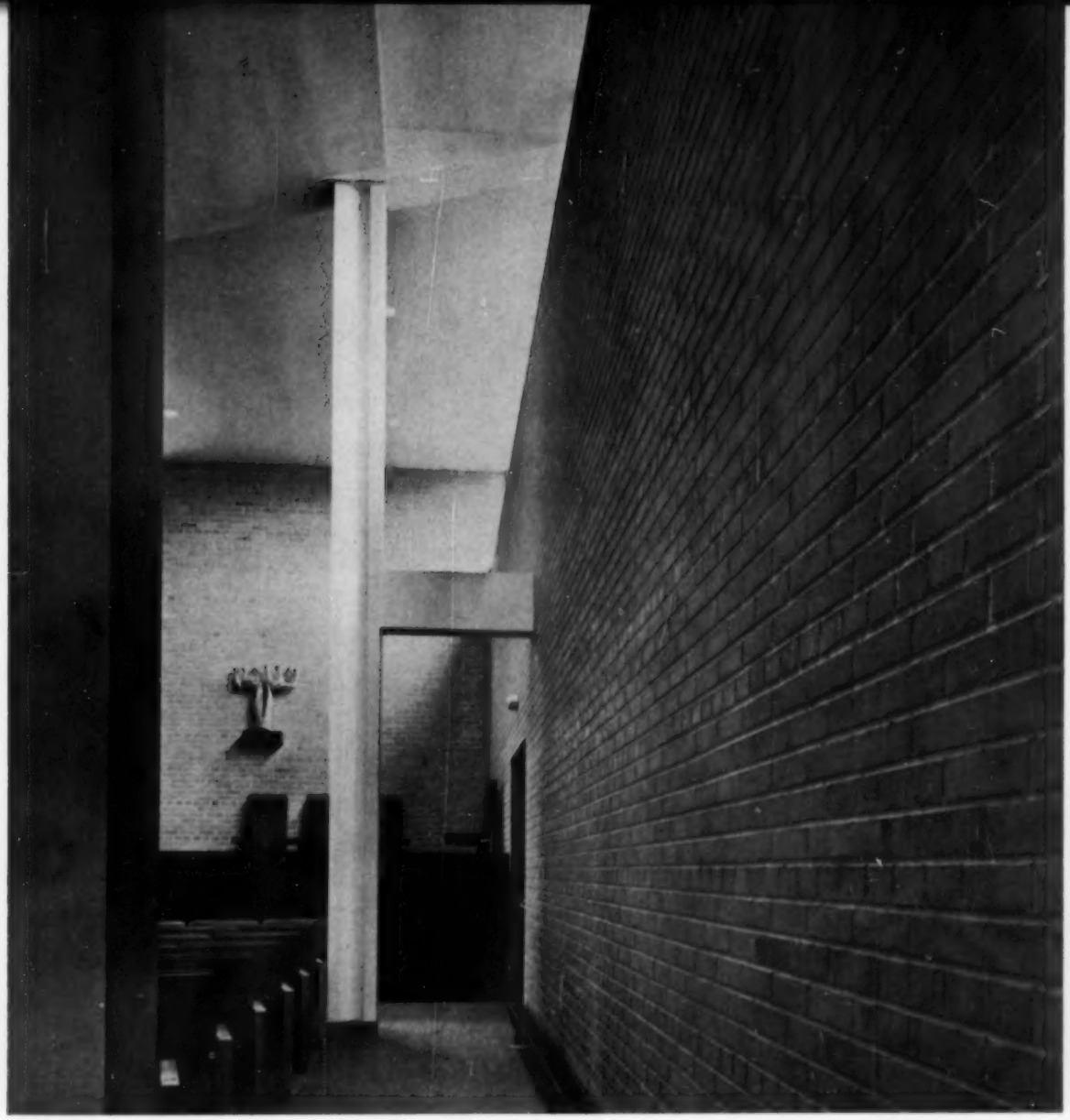


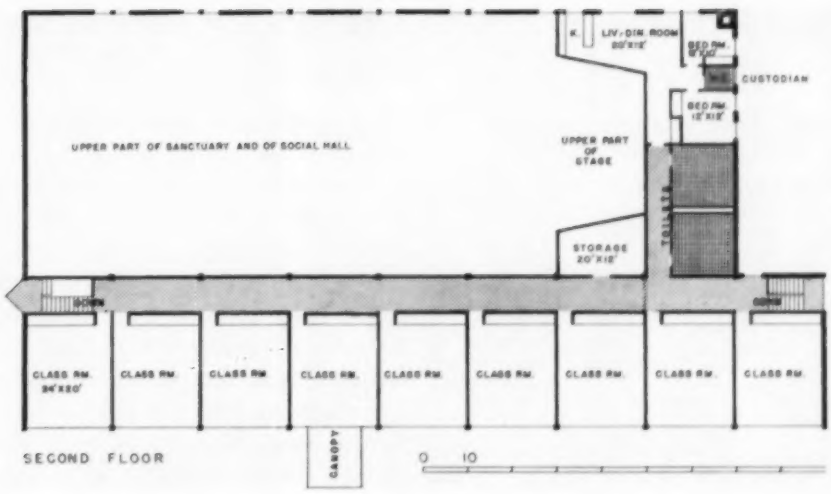
Hedrich-Blessing

*which so characterizes the good synagogue today. In an orderly, economical, and direct architectural expression perhaps only the triangular stair tower projection will be questioned — and that for its proportion rather than intention.*

IN THE OTHERWISE rectangular framework of exposed standard steel sections the architect has placed panels of brick, granite or glass. A projecting canopy covers the entrance from the gathering place within the walled forecourt. To the left the welded metal sculpture in the menorah theme is by Seymour Lipton. Directly ahead of the lobby is a central lounge whose partitions fold away on either side to open up the 22 ft high sanctuary and social hall whose combined seating capacity is 1000. The ark which dominates the sanctuary is framed in black and white veined marble and is covered with a curtain in brilliant color designed by Hans Moller. The menorah and the eternal light over the ark are by Lipton.

A chapel for small weddings and services, a multi-use library, a well equipped kindergarten and administrative offices complete the main floor. Above are nine classrooms and the custodian's apartment and in the basement are several meeting rooms and a large playroom. All adjunct faculties are designed for the maximum flexibility demanded by the heavy and varied use of the building.




K.
LIV./DIN. ROOM
20'X15'
BED RM.
CUSTODIAN
BED RM.
12'X15'
UPPER PART OF SANCTUARY AND OF SOCIAL HALL
UPPER PART OF STAGE
TOILETS
STORAGE
20'X15'
DOWN
CLASS RM.
24'X20'
CLASS RM.
CLASS RM.
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SECOND FLOOR
0
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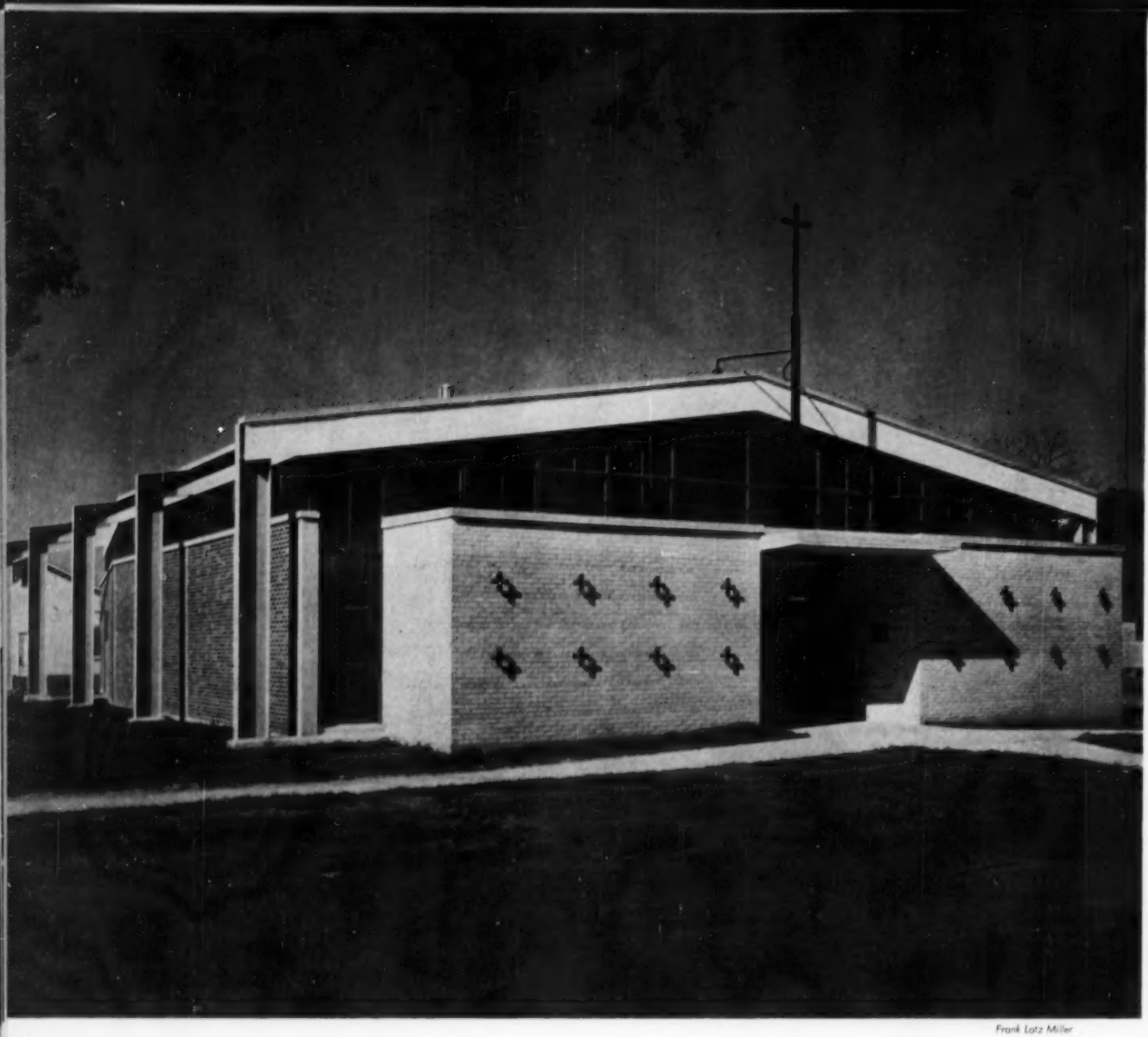


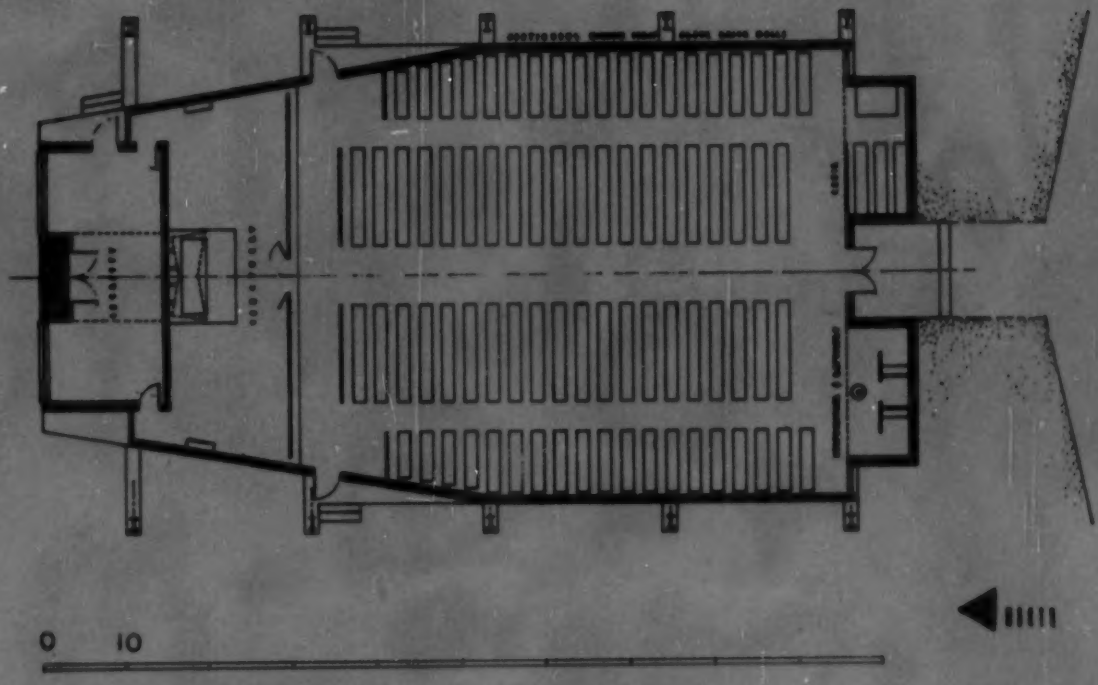
Frank Lotz Miller

# IMMACULATE CONCEPTION CHAPEL, JENNINGS, LA.

***Burk, Lebreton & Lamantia, Architects***
***Bartley & Binnings, General Contractors***

*On a budget of $65,000 which rigidly restricted design to the manipulation of the shape and color of a few simple materials the architects have created for this outlying area of a Louisiana parish a chapel of real distinction. The building is carefully made and achieves its success through this as well as through an expansive quality of the interior space which is generated by the well arranged natural light sources and the flat-bowing of the non-loaded brick side walls.*

*The desirable sense of withdrawal has been almost fully attained without sacrifice of the sense*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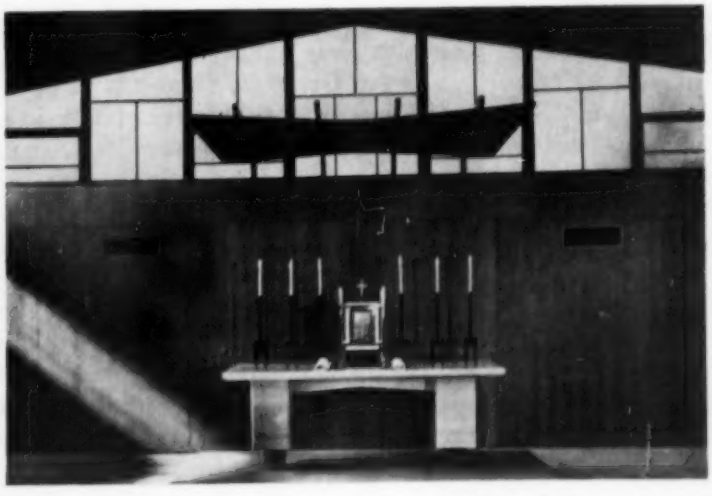


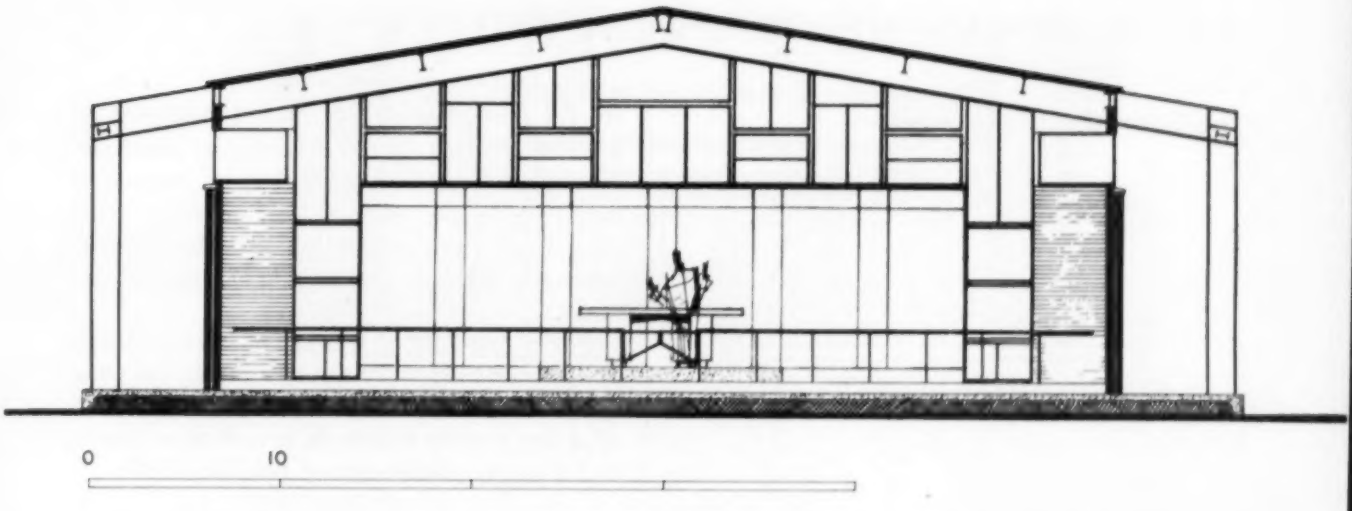
Frank Lotz Miller

*of welcome which is afforded, in part, by the transitional spaces under the eaves and behind the rank of supports. The penetration of these 10-in. hollow core brick walls with exit doors seems an unhappy necessity in an otherwise splendid geometry of concrete stabilization posts, brick infilling, and steel sash patterns.*

THESE LATTER ARE GLAZED in delicate tints of marine antique glass. Although the building is not constantly open regular services are offered for 400 people. The rigid steel frame carries a steel deck with built-up composition roof. The exposed deck constitutes the ceiling finish except over the chancel bay where an acoustical ceiling is hung to conceal electrical work, reduce noise, and provide an accent over the altar as well.

The floor is of concrete on earth fill with an added surface that was hardened, colored and waxed.

The wall separating sanctuary and sacristy, the canopy over the altar, and confessionals are of white oak plywood. The custom built furniture includes oak pews, a communion rail in oak and steel, a marble altar with iron candlesticks. The crucifix is of wood with a terra cotta corpus. Tabernacle is a stock steel box painted and suspended by bronze bars. All furnishings are included in the total cost as stated.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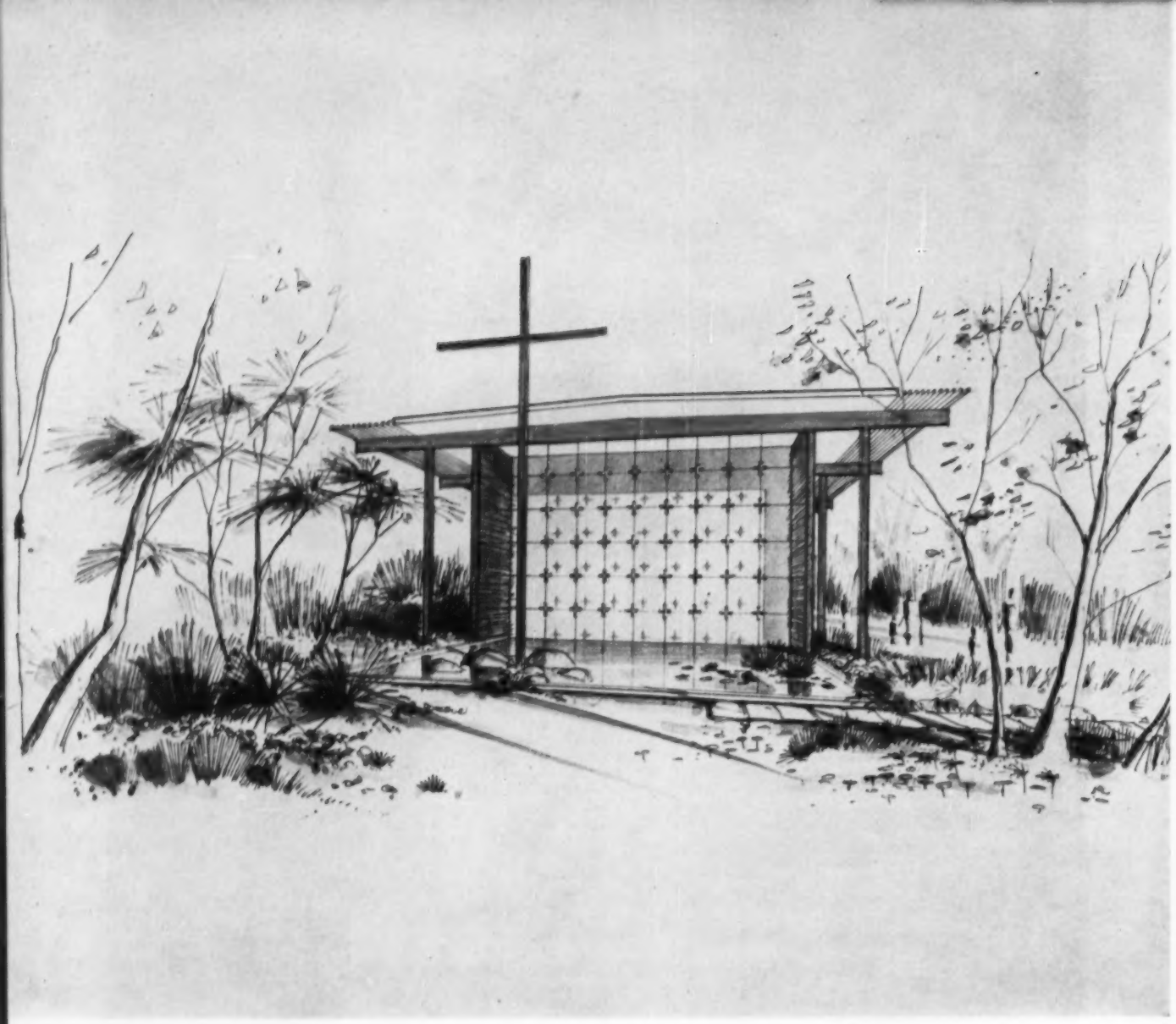
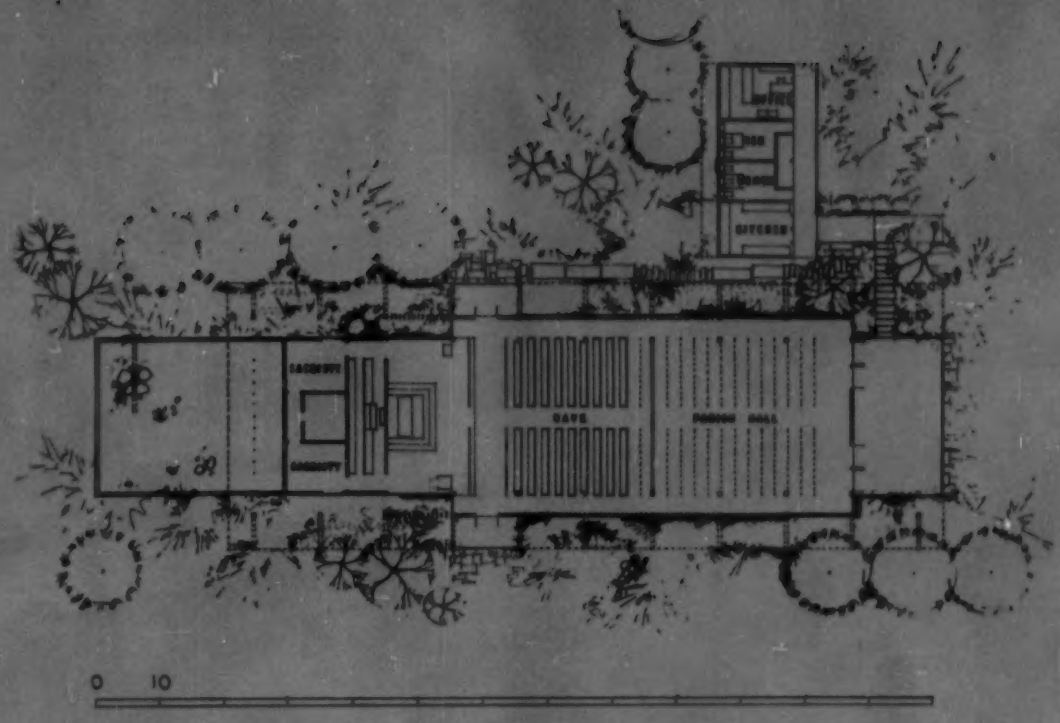


# ST. MARTHA'S MISSION, WEST COVINA, CAL.

***Carleton Winslow, Architect***

*In the final analysis instructive examples of architecture must possess and express either one dominant characteristic which is so appealing that it integrates — or at least overrides — all other aspects, or some combination of less forceful appeals which have been brought to unmistakable unity.*

*The proposal for St. Martha's Mission Church approaches such unity through employing in a simple constructional system a direct expression of a few modern materials, a rich color palette and a happy relationship of building to site.*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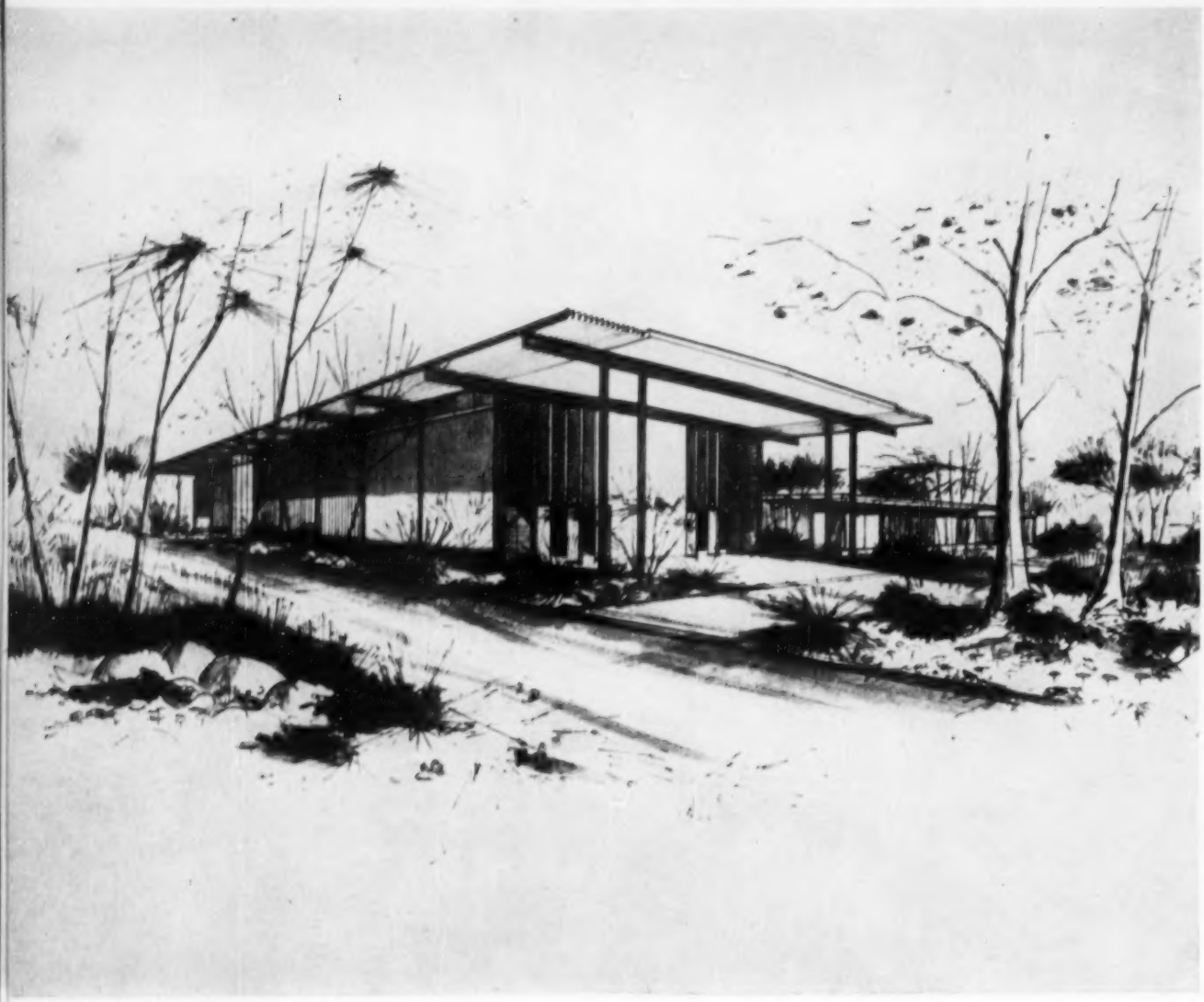


*Beyond the question of the appropriateness of its Oriental character for an Episcopal parish in a Los Angeles suburb there is a quality here which recommends the attention of all who must build to limited budgets as well as to those more fortunately funded.*

WHEN COMPLETED THIS BUILDING will stand in a grove of trees with a tall, white wooden cross rising from the side of a pool which has been arranged to reflect the end wall of the sanctuary. The wall, which is blue, will be lightly screened by a grid of wires supporting small gold crosses.

The building frame consists of laminated beams carried on square wood posts well beyond the side walls to keep out the direct sunlight. The broad overhangs are thus a response to a natural force in the region but provide as well — along with the range of supports which stand free of the building sides — an inviting cushion of space between the inside and the outside.

The side walls are to be entirely of burnt orange glass. Other colors are blue green, gray and royal blue.

Designed to seat 550, one end of the 150-ft. building can be closed off with sliding walls to function as a parish hall. The use of existing trees and the scaling of the building to them is unusual and rewarding.

# PONTI AND THE PIRELLI BUILDING

*The photographs and drawings that follow show the final revised scheme for the Pirelli office building, now under construction in Milan. The building is the combined work of two Milanese studios: the Studio Ponti, Fornaroli, Rosseli; and the Studio Valtolina dell'Orto, with whom Pier Luigi Nervi and Arturo Danusso worked.*

*In order to explain his philosophy of design and criticism for* Architectural Record *readers, architect Gio Ponti has composed a text to accompany the illustrations and has also written the captions.*

*Gio Ponti, widely known as editor and publisher of the magazine* Domus, *was born in Milan in 1891 and received his architectural degree from the Milan Politecnico in 1921. He has organized many of the Triennale exhibits; has written books on architecture and the arts; and painted the frescoes at the University of Padua. In addition to designing office buildings, villas, expositions, a college building and a mountain hotel, Ponti has designed furniture, various industrial products, and ship interiors.*

## *OUT OF A PHILOSOPHY OF ARCHITECTURE*

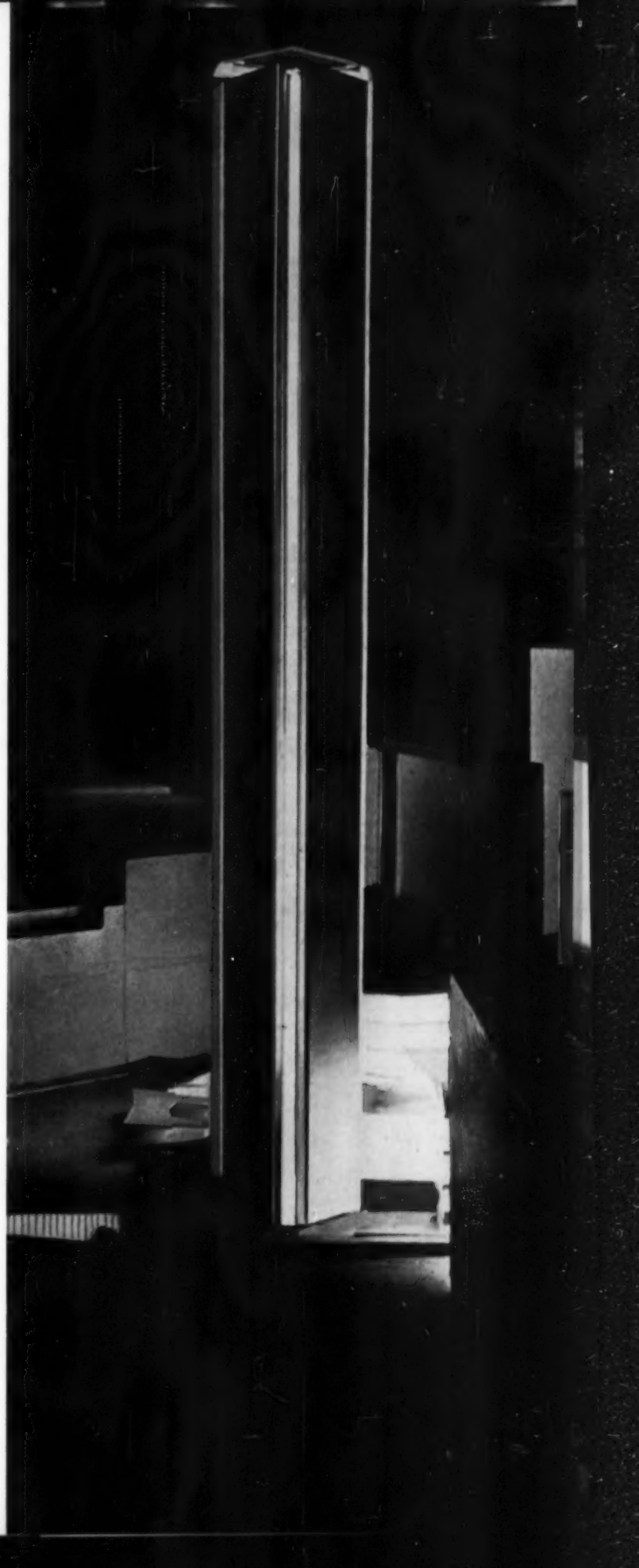
*By GIO PONTI*

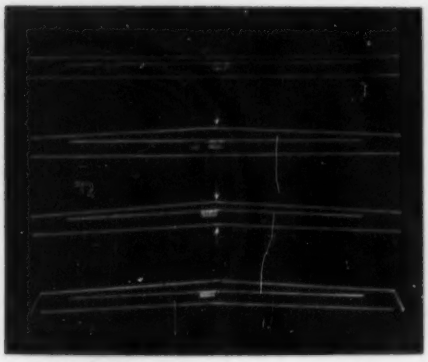
***Translated by Dr. Nathan H. Shapira, Architect***

In asking me *to state my "philosophy of architecture,"* Architectural Record *does me honor, for surely one's philosophy is more important than his works. For many reasons, actual works involve circumstances beyond our control, and the architect has at his disposal only limited powers with which to oppose them. It is difficult for the designer in practice not to betray his ideas, and in the final analysis it is the observer (you, the reader) who must judge how faithfully the reality follows the thought. To me this appears the only correct basis for judgment: that the work be judged only after the ideas generating it have been evaluated.*

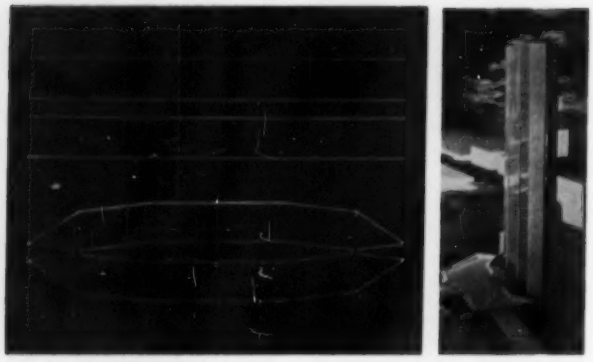
These thoughts are limited to an attempt to clarify the judgment of the "new architecture" by relating it to several unchanging ethical terms.

Obviously, a new architecture exists: new in terms of materials, structures and techniques which determine new spatial relationships; new in terms of new purposes, new requirements, new sizes, new customs, new functions, new relationships to environment, new conditions. But the new architecture also has a constant basis: *man.*

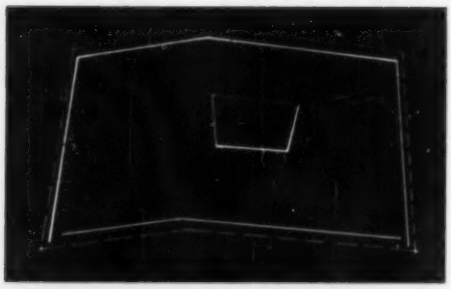




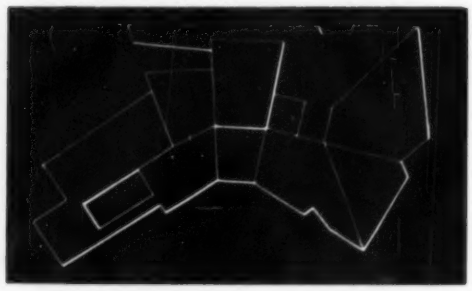
1. *Institute of Nuclear Physics, Sao Paulo*



2. *Pirelli Building, Milan*



3. *Villa Planchart, Caracas*



4. *Villa Arreaza, Caracas*

**THE SEARCH FOR FORM**

*1 & 2, transition from a parallel pattern ad infinitum to a closed or definitive pattern; 4, progressing from two prevalent aspects (frontal and symmetrical) through spatial composition to a design with multiple aspects — greater complexity with continuous change in form. 5, A complete or closed form within a grouping of diverse elements with differing functions — hotel element at left, foundation proper at right. 3, The final realization of a complete "closed" form*

**PONTI (continued):**

There is also a new man. There is always a new man, but there is always *man*. And there is a universal condition, nature, which is never new, but constant.

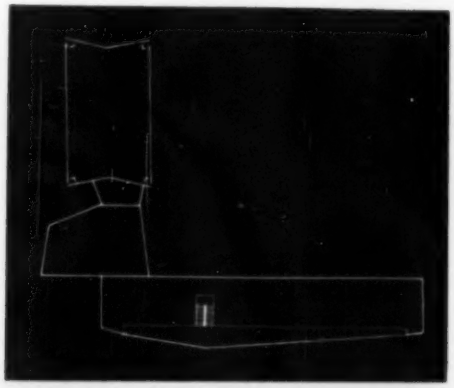
It is equally obvious that the "past" and its formal tradition are no longer useful conceptually in designing this new architecture. In the context of all these new things, there is a genuine gap between the architecture of the past and our architecture. But — and here is the core of the issue — when the new architecture must be judged as a reality and a work of art, then the term 'new' no longer exists, for we must evaluate it within a framework of universal and unchanging terms.

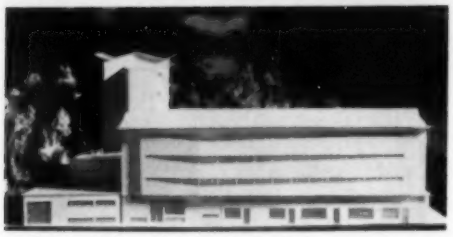
There is, of course, a type of judgment — the "historical" — which is extremely interesting and which vastly enlarges the boundaries of architectural study. Such a judgment considers "architecture" as the totality of all built things; it makes use of all those aspects listed above, and it considers esthetic value as *one* of these. But can this be the judgment of an architect? Is it not rather the judgment of an historian who — correctly enough for the purposes of history — takes everything into consideration? The judgments of the working architect, who is active, and of the critic, his contemporary, are necessarily more restrictive. For the practicing architect and the critic, this historical enlargement of ideas and boundaries — which embraces and hence accepts everything on the same level — hardly clarifies the thinking that inspires art. Nor does it contribute — once these ideas have been defined — to the aim of clarifying and purifying the end product.

To relate the new architecture to *absolute* esthetic (i.e., ethical) values, and to consider this relationship *exclusively* in terms of architecture — or, to establish the condition of a work belonging to architecture, *which implicitly and necessarily gives us all the rest* — favorably limits one's judgment. It excludes innumerable buildings old and beautiful, but it helps clarify evaluation.

▪ ▪ ▪

In viewing architecture as "a work and creation of art" there is no past, because *in our culture everything is simultaneous*. There are no new ways of judgment; we must approach works of architecture on the level of

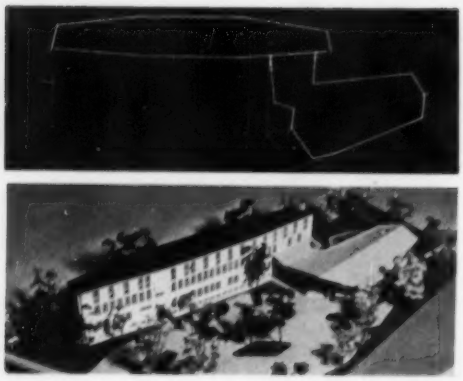




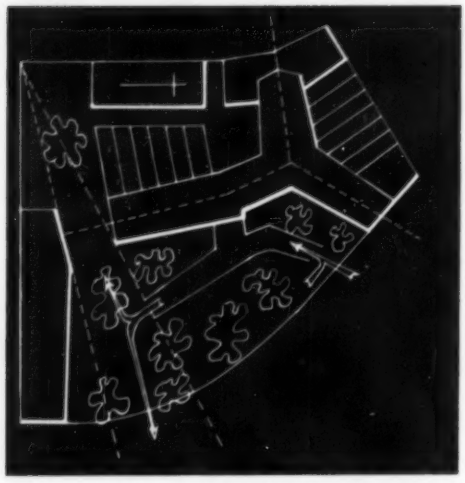
5. *Garzanti Foundation, Forli, Italy*

a pure and exclusive evaluation of art. Neither history nor new techniques, materials, structures, sizes nor new functions will alter the eternal and unique conditions of this judgment, because such conditions are moral. The pure judgment of art cannot alter these conditions; rather, it occurs after them. The architectural judgment of a work is unique and permanent, regardless of whether it is art, whether it is beautiful, or whether it delights us. And that judgment must be kept separate from everything else — use, purpose, material, technique, period, and so on. These latter considerations are implicit in the pure evaluation of any work, beautiful or ugly, but *they do not function on the level of art.*

Thus, when I admire Philip Johnson's steel and glass pavilion by saying it is an example of Attic, you will understand that my judgment transcends the work itself in one exclusively spiritual answer in the permanent and unchanging terms of thought. Thus, my notion of *the Attic* symbolizes a supreme degree of purity rather than a place or a period. The conceptual framework I use in approaching architecture as a work of art may be

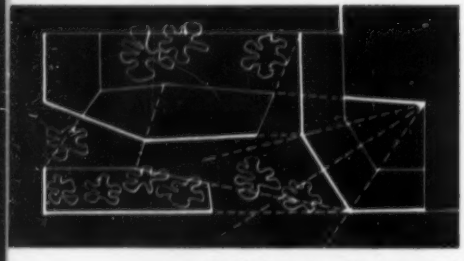


6. *Institute for Italian-Swedish Culture, Stockholm*

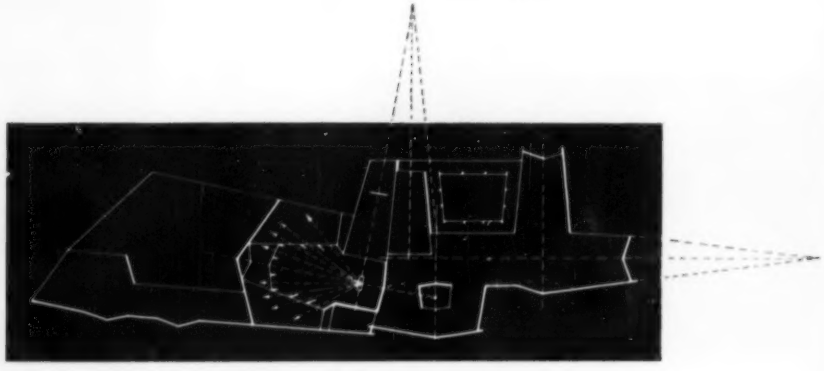


8. *R. A. S. Building, Milan. Ponti, Ponti, Fornaroli, Rosselli & Portaluppi, Architects*

THE SEARCH FOR FORM



7. *Gallini Center, Voghera, Italy*



9. *Monastery & Church, San Remo, Italy*

**PONTI (continued):**

formulated in the following terms: (1) *Formal and Structural Inventiveness*, (2) *Essentiality*, (3) *Representativeness*, (4) *Expressiveness*, (5) *Illusiveness*, and (6) *Perpetuity*.

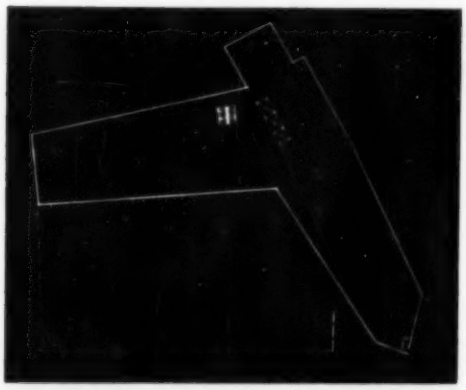
At the risk of repetition, let me say that I respect the historical judgment of an example of modern architecture as it relates to comparisons, documentations, and analogies; in relation to technology and its evolution; and in relation to changed social conditions or customs. Further, in terms of historical-critical evaluation, the search for similarities in the works of different creative minds will sometimes offer a superb testimony of culture. However, in the field of creation — in the field of architecture to be done — to evaluate architectural validity we must judge exclusively in universal and permanent terms. In such terms, the contingencies of periods and of places, of materials and of functions, count for nothing. One might even say that a work of art is entirely a matter of interior re-imagination, despite whatever similarities the thread of history might — by chance — show.

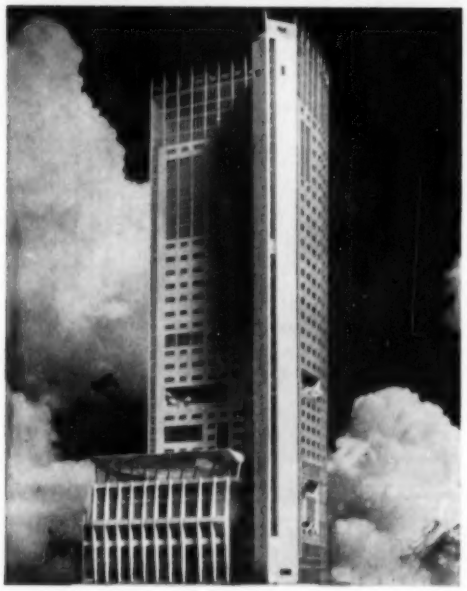
I do not underestimate the constructive values and the functional clarity of architectural drawings; all that is implicit in each sensible work of architecture. This was always so, especially in primitive works. But functionality is necessarily a constitutive term which has no importance in our judgment because we judge solely whether or not architecture is functioning on the level of a work of art. There are buildings that function admirably on the practical level, but which simply do not function on the artistic level.

There are so many examples of architecture that were brought into being for a specific purpose (a home, a palace, a church) which were preserved afterwards and remain valid for other functions because they are beautiful. They function now on the artistic level! Even ruins can function on this level when every other use has been lost; they speak forcibly to our minds in unchanging terms.

• • •

I believe that both in judging and in creating architecture as art, each work must stand alone before





10. *Project for Italy House, Sao Paulo*

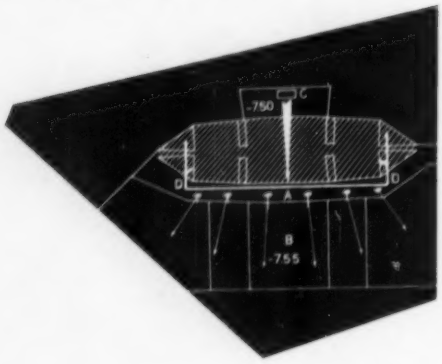
certain laws — universal and unchanging conditions. I have formulated these laws in my own way, and should like to explain how I justify them.

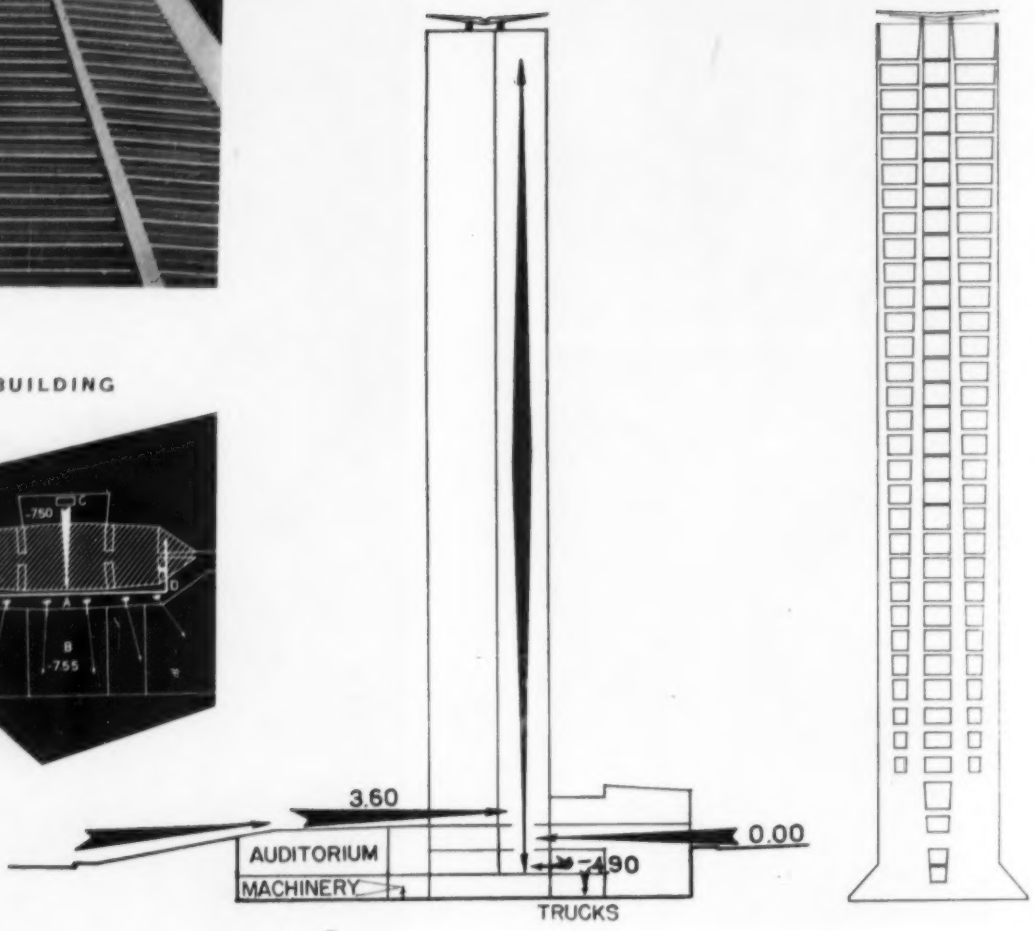
***Formal and Structural Inventiveness***

There is formal inventiveness, whether of unity or of composition, only if there is a form. When there is a form it can be only finite — i.e., closed — either materially or conceptually. A form is unchangeable, unrepeatable, unique, and coherent in each part. When there are forms whose structures are identified with architecture — this occurs markedly today and this is what I mean by structural invention — then there exists a *forma veritatis*, a truthful form, integrity of form. Formal and structural inventiveness is a term of judgment. It is judgment brought to bear on the facility of the architect's *imagination*. Even to make rational architecture we need architectural imagination.

Examples? In the Falling Water House and in the Ronchamp Chapel there is formal invention. In buildings where there is a simple repetition of elements there

THE PIRELLI BUILDING




**PONTI (continued):**

is no formal invention. Consequently such elements are a matter of technique and not of art.

***Essentiality***

A construction is truthful if it is brought to its very essence, in opposition to any esthetic dogma, academic notions (whether traditional or modern), or the insistence upon decoration. Care must be taken, however, that the plasticity of the architecture of the past is not confounded with the function such architecture served in celebrating some person or event. The work must arrive at the point where nothing can be added or taken away; it must arrive at unity, essentiality. Essentiality is the term of judgment that *measures* a work.

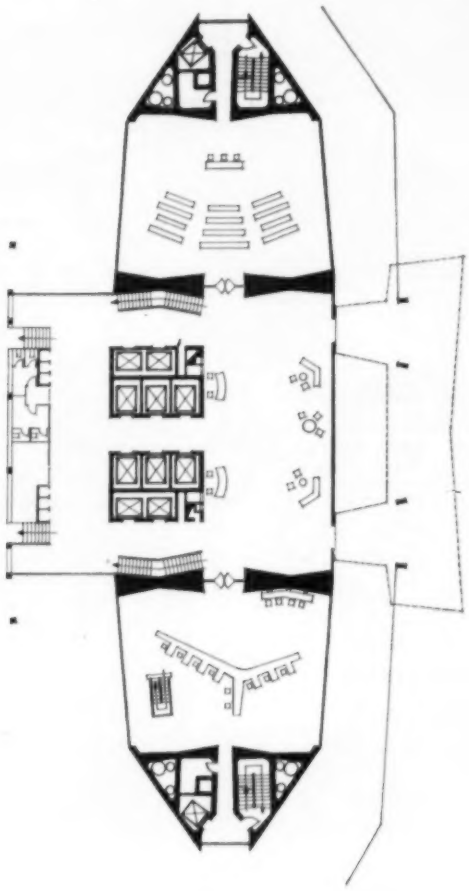
***Representativeness***

A building must visually represent to the mind that purpose for which it was or is dedicated. In the masterpiece there is no equivocation. A palace is a palace; a temple is a temple; a house is a house. The Falling Water House by Wright is exactly what it is; the Chapel at Ronchamp by Le Corbusier is no more or less than *une chapelle*. It is only during periods of decadence in creativity — periods when the academic has dominated, or when history has turned back on itself — that architecture has created sham and confusion, and has abandoned clarity. Such work is "*architecture d'apres l'architecture*," as Cocteau would say — to which I add, *et pas d'apres une creation*. It has created stock exchanges, railway terminals, parliaments, institutions, according to the design of Grecian temples. The representative aspect must be alive, rich in imagination, recognizable in the constitutive part of architecture.

The representative aspect characterizes the building and cannily brings it to popular understanding, to that *communication* which is one of the terms in the proof of the existence of art. This is the element of judgment brought to bear on the *character* of the building.

***Expressiveness***

This is that wisdom of an architect which knows how to make his building understood by the visual message of



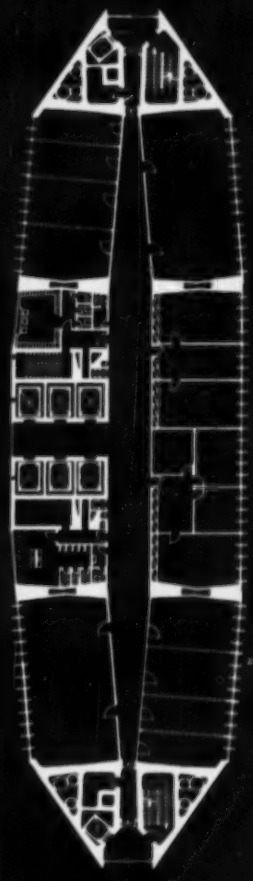
*The plans make clear the manner in which the bifurcated columns diminish in area towards the building's summit. In the small plan, left page, C indicates the truck entrance and lift; D shows the glass-enclosed gallery where visitors may view mechanical and electrical equipment, located in the area noted as B*

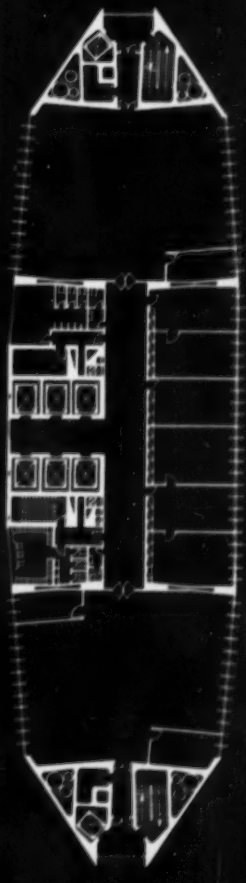
its elements. It is an interpretation of those elements in a way that makes them clear in the language of architecture and hence clear in the mind of the observer. It is the judgment of the architect's *aculeness*, of the manner in which his imagination *speaks*.

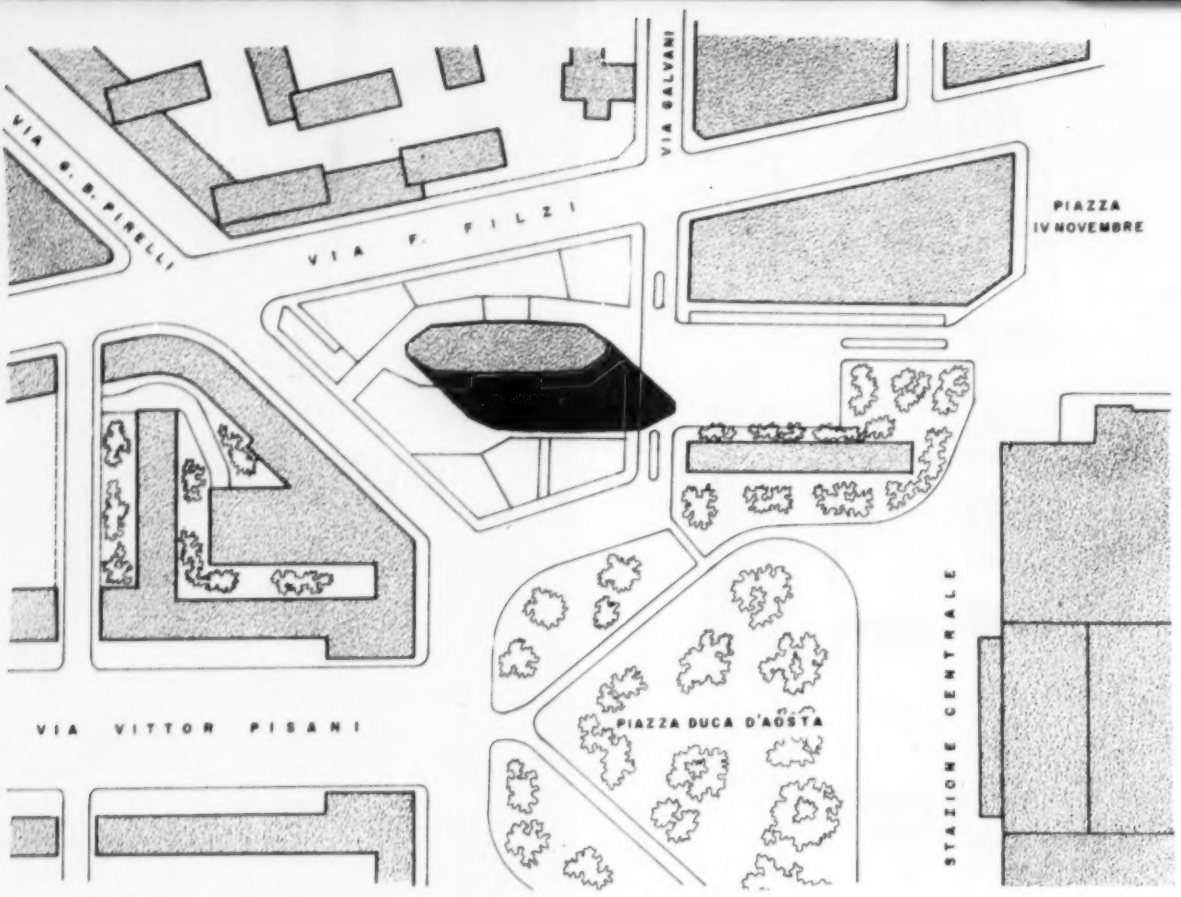
***Illusiveness***

This characteristic is one which transposes the building to a higher level — sheerly poetic and unreal — where a volume, a dimension, a weight, or a manner becomes meaningful. Without this quality of poetry, of unreality, the building is not a work of art; it remains in essence technique and engineering, not architecture.

According to Le Corbusier, a building "*doit chanter*." This song (*canto silenzioso*, if I may call it that) is the song of architecture, which abides in illusiveness. An example: the Ca d'Oro in Venice has weight, as do all other palaces, but how light it is! Remember that architecture is not only static but also ecstatic; its poetic unreality is its only true reality. This is to say that illusiveness is another term of judgment.








**THE PIRELLI BUILDING AND THE CITY**

*Development in height is justified in a city when the ground area occupied by the building proper is small, so that the surrounding areas are freed for the movement of traffic and for parking. Based on a 20 minute time limit, the plaza between the bounding streets provides parking for over 2,000 cars during the working day. Inner truck road (dash line at right) descends 5 meters below street level*

**PONTI (continued):**

***Perpetuity***

This derives from all of the foregoing terms because they are ideal terms, universal terms, and hence unbounded by any of the contingencies of time.

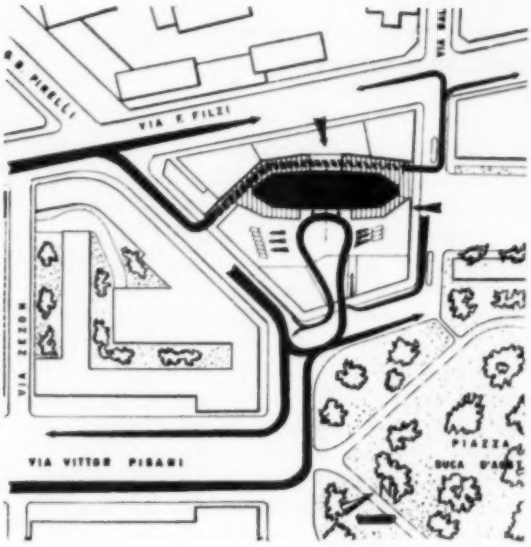
▪ ▪ ▪

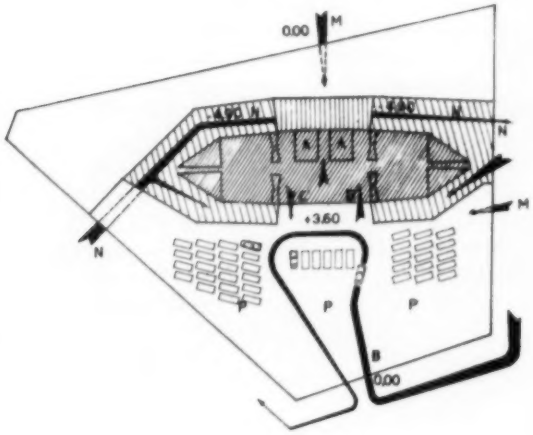
Can you conceive of architecture as a work of art when it does not contain formal and structural inventiveness, or when it does not possess its own finite, unchangeable and unrepeatable form? Its unchangeability lies in the perpetuity of its form. Buildings constructed with equal elements repeated vertically and horizontally, with parallelisms, and with no limitations which derive from a composition (form *is* composition) are admirably congenial, if you will, but they belong to technique — which functions on the level of pure utility — and to engineering — a wonderful discipline, but one which has nothing to do with architecture as art.

It is advantageous to distinguish clearly between technique and art; between engineering (even in cases where it is splendid) and architecture (even if it is simple); between that which grows and advances (as engineering does) and that which possesses perpetuity (as Palladio says). If there is an architecture that interprets the social progress of civilization and which takes advantage of technological progress then, for me, such a progressive architecture cannot exist as a work of art.

Technology is progressive; art (and thus architecture as art) is not progressive, it is perpetual. Technical work is repeatable for it is a prototype and repetition does not falsify it. Each repetition of technology is authentic; each Cadillac is a Cadillac, each factory type bears repeating, as does a bridge. Each example of architecture — the work of art — is a monotype; it cannot be repeated; it is absurd to repeat it; the repetition would be a fraud. Would you duplicate the Falling Water House? The Chapel at Ronchamp? Would you make a row of Falling Water Houses, each repeating the other? The work of art is permanent — "perpetual" as Palladio says. Let us preserve it! It is always alive, even in ruins.

A work of technology dies by self-transformation be-



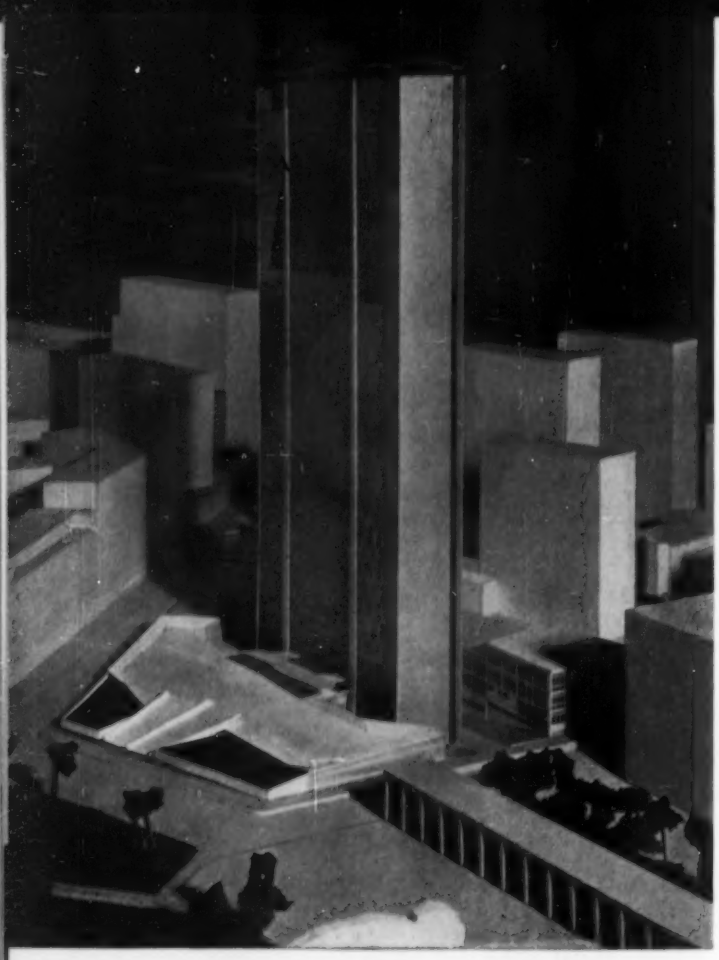



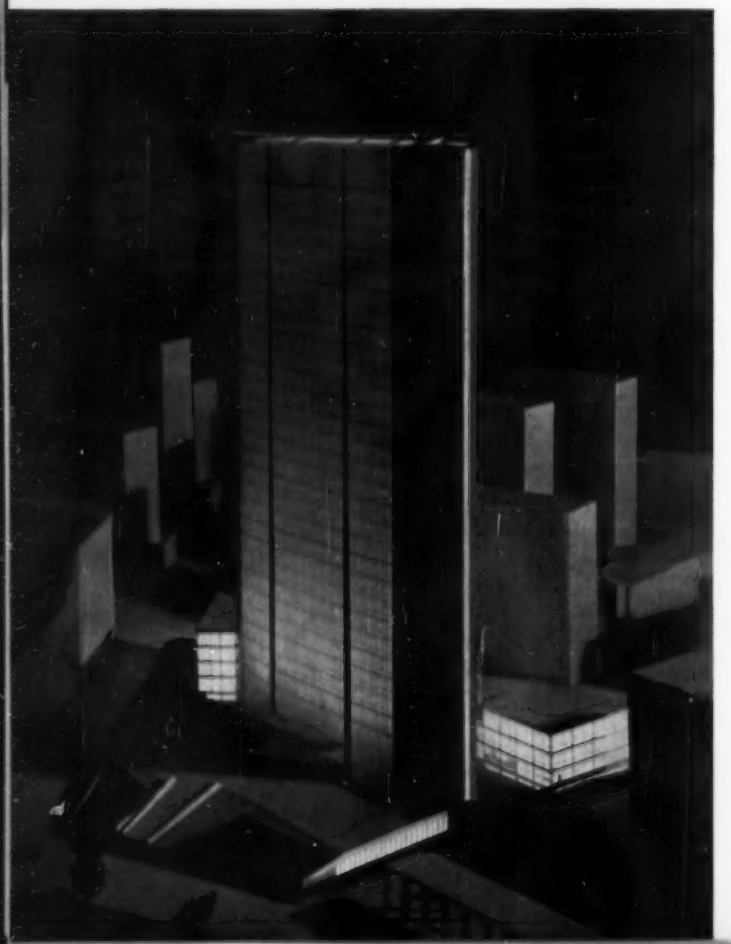

cause technology supersedes itself, is progressive. We do not preserve a worn out product of technology; its ruins are bits and pieces. An old car is grotesque, and so is an out-dated factory building. We can think in terms of permanent value and of full poetic and spiritual efficacy when we speak of any work of art, yet how can one conceive of the permanence of a car, a locomotive, or an airplane — even if they are beautiful?

So, for me, prefabrication and social architecture are works and technical services; works and social services. They are *historical architecture*. That is only by chance a work of art which, by its creation, generates models according to which things are prefabricated, for such is purely an historical and academic fact, not an artistic one; it is a transitory fact, not a perpetual one.

***Conclusion***

My understanding of these terms for judging and designing matured slowly, and any merit they may have is due others. To understand them is to feel their shock, even by contrast. I passed from buildings having





## THE PIRELLI BUILDING
## DAY AND NIGHT

**I should like to mention — as brief observations — some recent developments in modern architecture. These do, however, always enter into esthetic judgment in the terms I have mentioned.**

**First, it appears that our architecture is divorcing itself from the use of materials upon which time can act competitively. We are coming to use incorruptible materials; non-oxidizing metals, glass, ceramics, plastics — materials born of technology and not of nature; materials which do not become old. But when architecture does indeed become old, can we then say that its materials too have become old? That which has everlasting value can hardly be old.**

**Next, in addition to designing for daytime we must consider the night. Why not develop the possibilities illumination offers for obtaining a different optical effect that changes forms, distances, sizes, volumes, silhouettes, weights, and creates (or annihilates) spaces and spatial relationships? This can be a brand new dream for architecture. American architects: take this idea and let it revolutionize the aspect of your cities at night! Or, let me collaborate with you to create a building, even a small one, of two architectures — for the day and for the night!** — ***Gio Ponti***

**PONTI (continued):**

parallelisms without finite form, or having only perspective variations — to the search for closed forms and for visual variations as one moves about them. I passed from closed buildings (volumes) to buildings penetrable visually (spaciousness). I passed from inexpressive to expressive buildings. And I will, if God permits, include light in architecture for the night.

In permanent terms, the result enters into the spirit of "classic without classicism" — i.e., becomes classic without classical elements. Paraphrasing the title Edgar Kaufman gave his article in *Art News* on the Pirelli building, "a new look in the old American art of the skyscraper . . ." I might say instead, "an old look in new American . . ." Why? Because, in effect, what we sought was an order for all time, not a new order. And because, in effect, the American art of the skyscraper is new; did not exist before historically modern times. This does not diminish the fact that the Pirelli building has a new look, despite its "obedient order." The novelty is that the new construction is reformulated in accordance with perpetual spiritual laws.

# BATHROOMS

*Malibu, Calif.: Henry Robert Harrison, Architect; Douglas M. Simmonds photo*

*Woodside, Calif.*

*Clark & Beuttler*
*Architects*

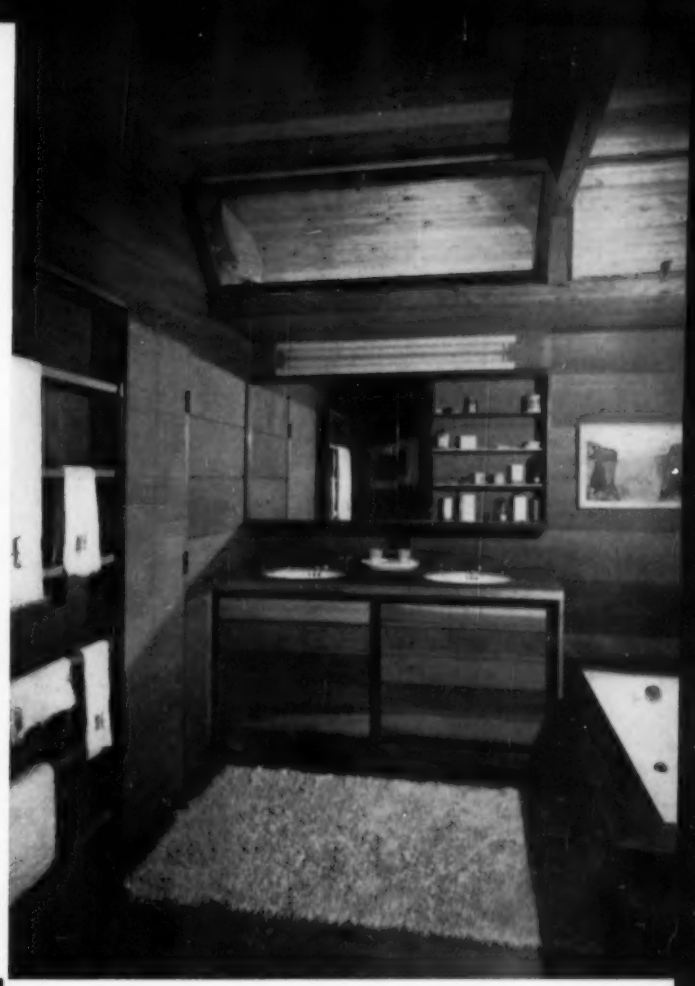
*Ernest Braun photo*

## BATHROOMS

*Libertyville, Ill.*

*Schweikher and Elting*
*Architects*

*Hedrich-Blessing photo*



*North Muskegon, Ill.*

*George Fred Keck and William Keck*
*Architects*

*Hedrich-Blessing photo*

*Seattle, Wash.*

*Paul Thiry*
*Architect*

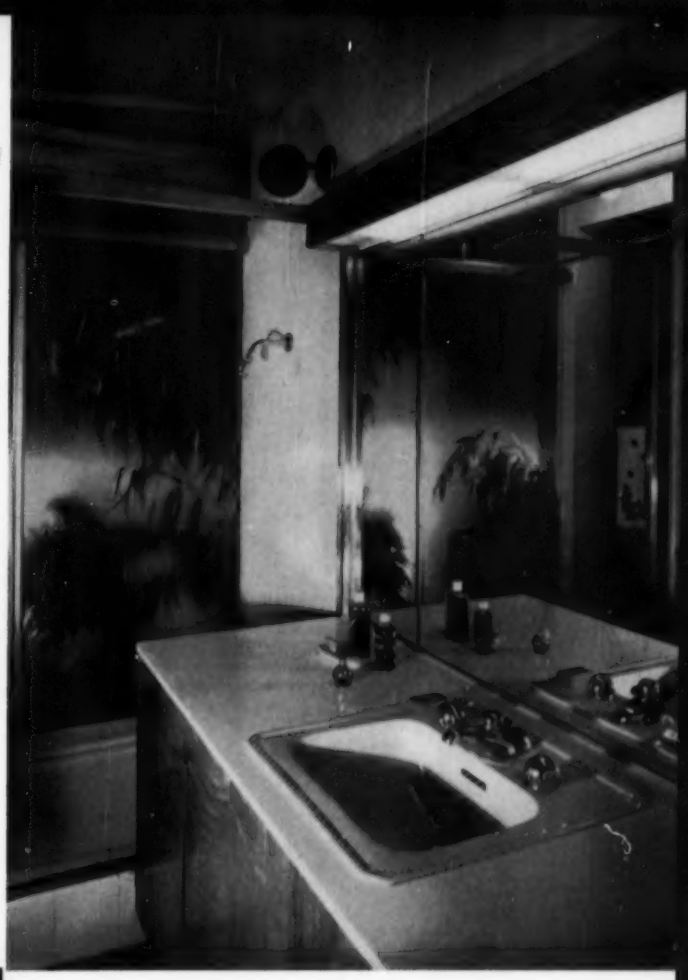
*Art Hupy photo*

## BATHROOMS

*Tujunga, Calif.*

*Richard J. Neutra*
*Architect*

*Julius Shulman photo*



*Miami, Fla.*

*Nims & Browne*
*Architects*

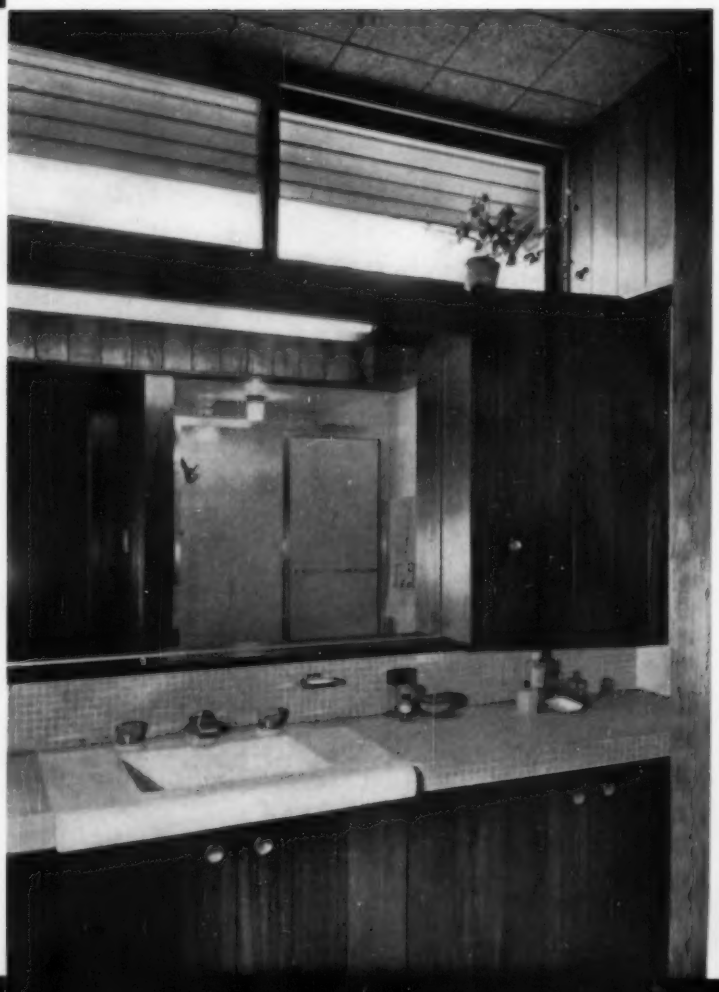
*© Ezra Stoller photo*

*Mt. Airy, N. C.*

*C. D. Elliott*
*Architect*

*Joseph W. Molitor photo*

# BATHROOMS

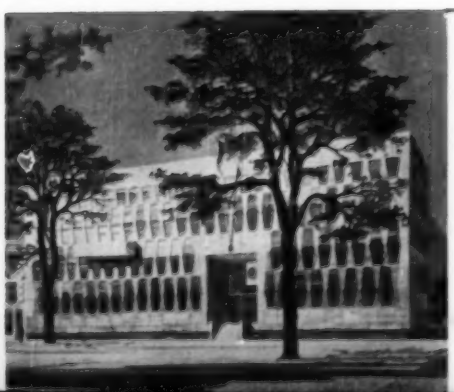


*South Pasadena, Calif.*

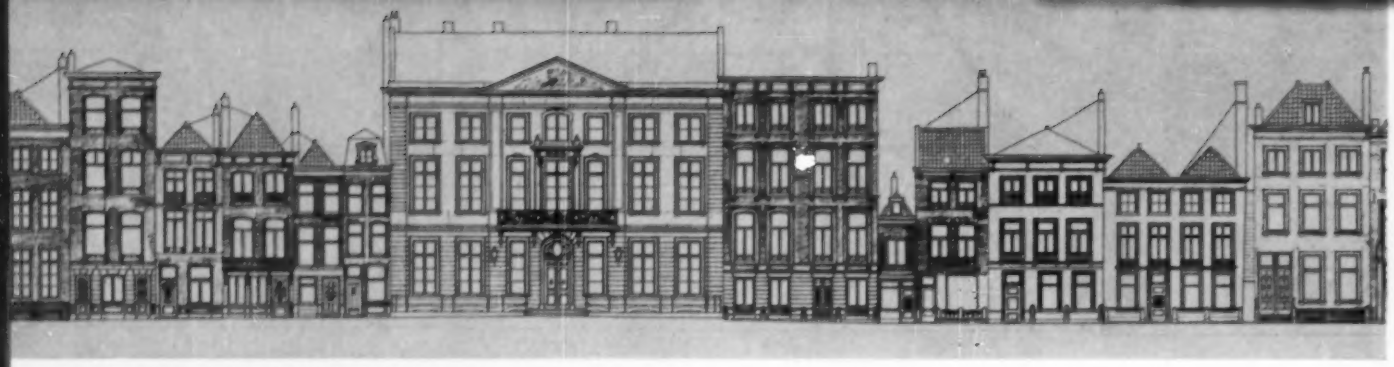
*Jean Roth Driskel*
*Architect*

*Douglas M. Simmonds photo*

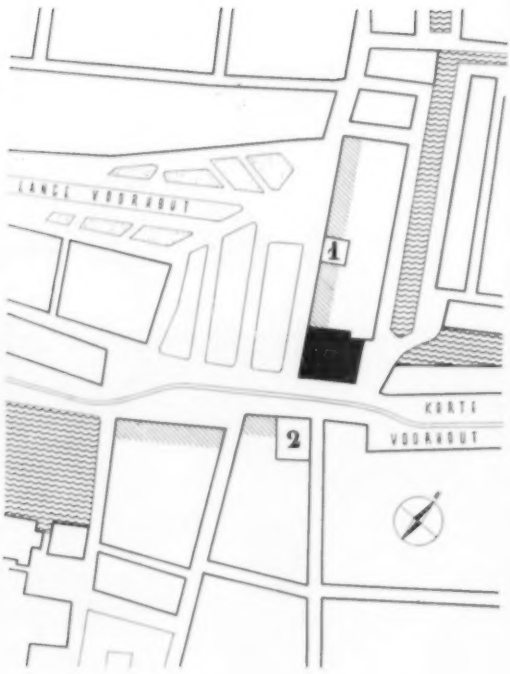
# A NEW KIND OF BEARING WALL



*In his scheme for the United States Embassy Office Building to be built next year in The Hague, Netherlands, architect Marcel Breuer has devised an unusual solution to the ancient problems inherent in a fenestrated structural wall*



1. BUILDINGS ADJOINING THE SITE TO THE NORTH




2. BUILDINGS FACING THE SITE FROM THE SOUTH

OFFICE BUILDING SITE

**U. S. EMBASSY OFFICE BUILDING, THE HAGUE**

***Marcel Breuer***
***Architect***

IN ANSWER TO THE QUESTION, "Why did you decide upon masonry construction for this building?" the architect replied that the answer could be found in tracing the development of the design and in following the thinking that went into its growth.

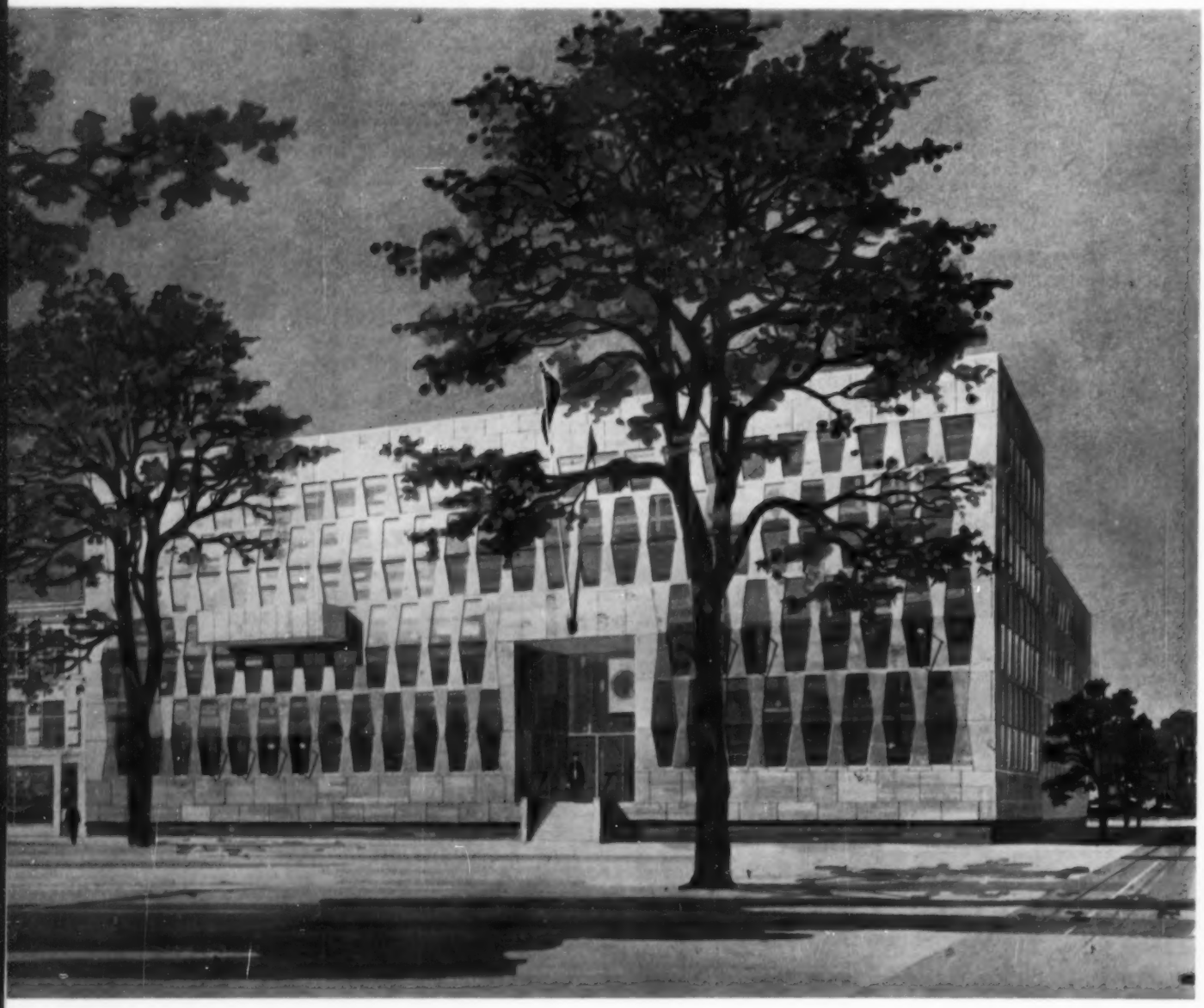
From the beginning the site, the city, and history weighed heavily in all the considerations. Tradition is not to be taken lightly in The Hague, historic seat of Dutch government. At the site proper, on Lange Voorhout, the street widens to form a small park, shown at left by the photo. Here one is in the midst of the buildings shown at top and bottom, which date variously from the 17th, 18th, and 19th centuries. Many are of a gray sandstone which, unhappily, slowly disintegrates in the weather, in much the same fashion as the old brownstone in New York. The use of this particular sandstone is now prohibited, but the important fact remains that here, on Lange Voorhout, the traditional manner of building is in *masonry*.

Breuer next called attention to the *scale* of the surrounding buildings, which is small — almost domestic in character — with two exceptions: the Queen's Palace, far left in the photo and shown also in the top strip; and the Queen's Theater, shown at the left end of the bottom strip.

Several design approvals were necessary. First, the actual space needs were studied and arranged in a manner satisfactory to the officials of the Foreign Buildings Operation and the Security Agency. Next, the drawings had to be reviewed by the Architectural Advisory Committee, consisting of Messers Shepley, Belluschi, and Bennett. In Holland, approval was required from: the City Building Department, concerned with structure, materials, etc.; the Art Commission; and the City Planning Office, concerned with building esthetics as well as street plans, traffic, etc.

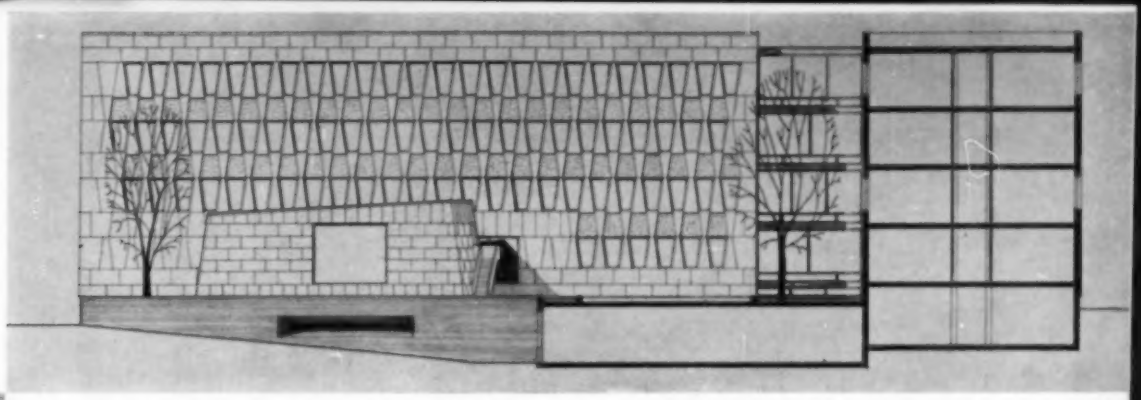
In such a situation, where "new versus old" becomes a leading issue, Breuer contends *"there is no need to compromise; a modern design, if good, will be appropriate. For example, the buildings bounding St. Mark's Plaza date from several periods, yet what is important there is the over-all character and unity of the space. Here, in The Hague, small scale is important, and so is the dignity of the building — the creation of a proper presence. A steel and glass structure here might strike a jarring, aggressive note; masonry would seem to be more at home."*

For flexibility of partitioning in the new building, a 5 ft module governs both plan and bearing wall. For the exterior, however, there was a desire to avoid the usual vertical and horizontal rows of windows that give the effect of holes in the masonry and transform the wall structurally into a series of vertical piers. The goal was the maintenance of both the visual and structural integrity of the wall; its expression as a single entity. Thus, the module spacing was staggered on alternate floors and



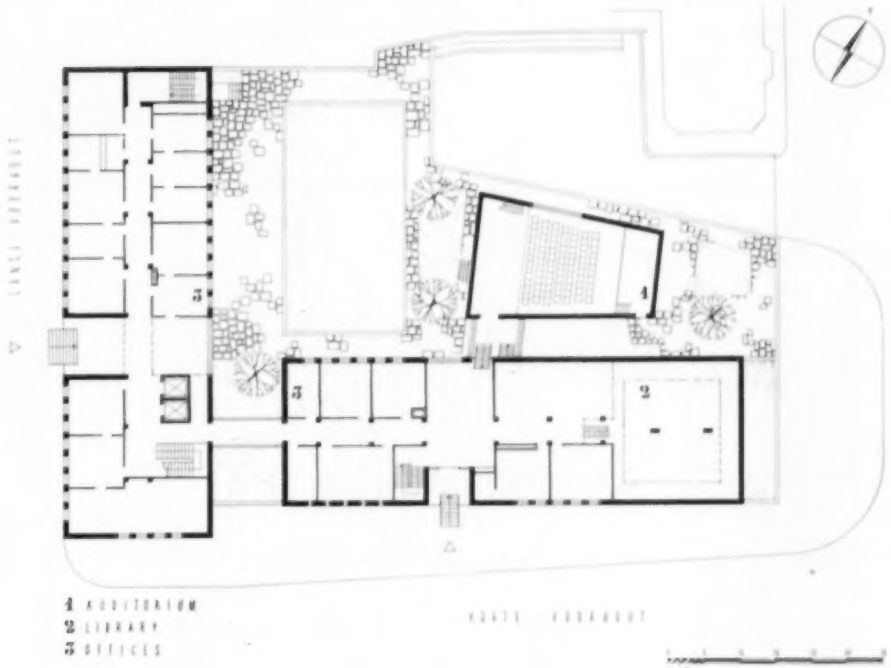
the sides of the openings were chamfered to ease the flow of diagonal stresses. The result is an over-all fenestration pattern in a wall that looks and acts like a unit. Also, there is now the opportunity to group the openings into plastic forms, as was done in the elevation at bottom right.

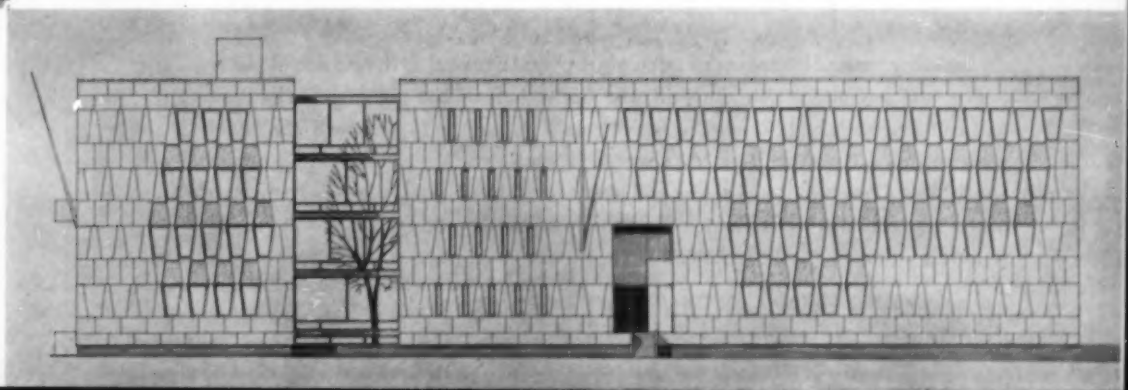
With scale in mind, the long elevation was divided into two units connected by a glass link, and the entrances were designed as penetrations through the solidity of

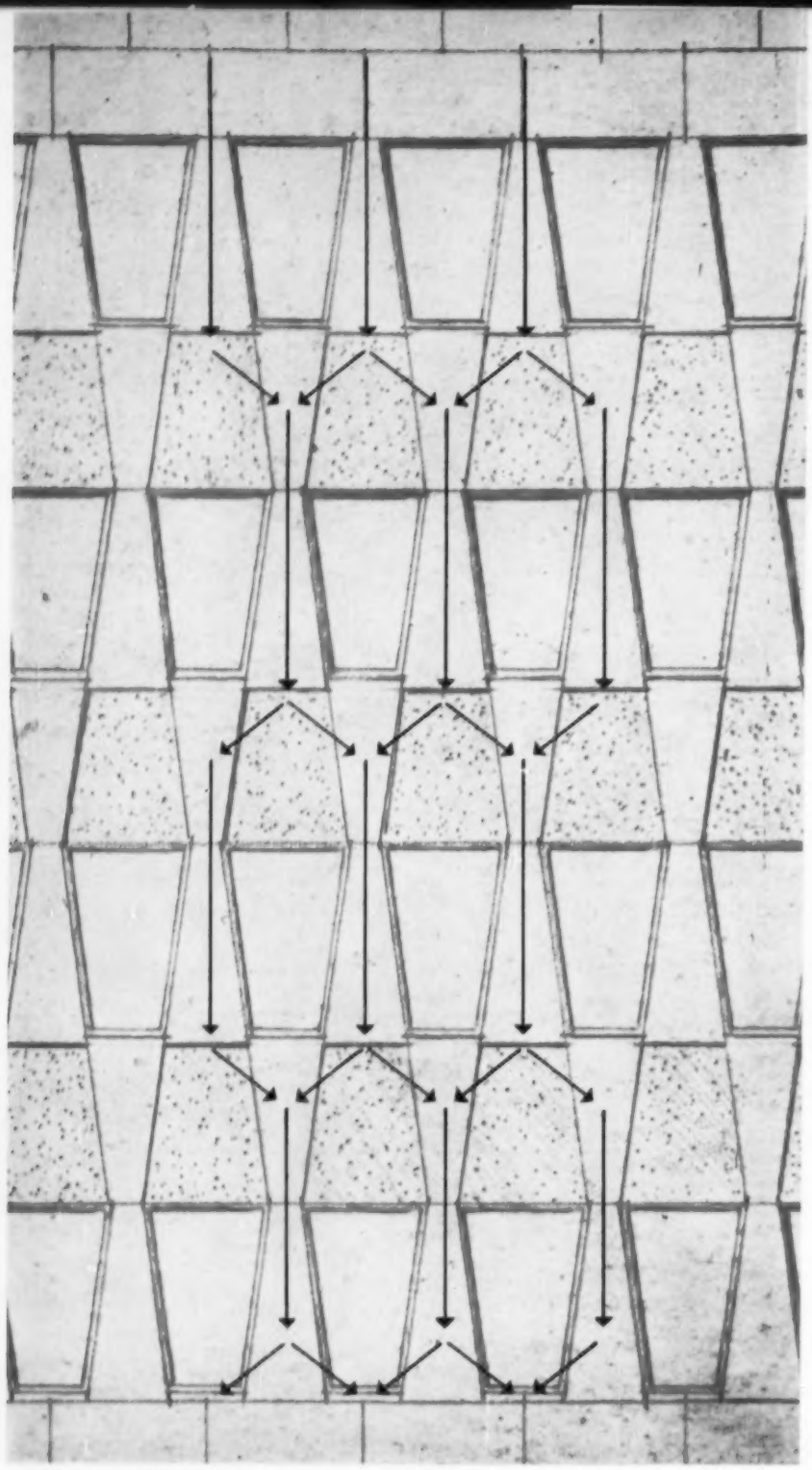


**U. S. EMBASSY**
**OFFICE BUILDING,**
**THE HAGUE**

***Marcel Breuer***
***Architect***





**U. S. EMBASSY OFFICE BUILDING, THE HAGUE**

***Marcel Breuer Architect***

the building masses by means of large glass panels opening to the garden at the rear.

For textural interest in the wall, the upper half of the coffin-shaped openings will be faced with highly polished granite slabs; while the typical wall will be faced with imported limestone (not yet selected) with its surface roughened by means of striations. The striation pattern will vary from stone to stone — some vertical, others horizontal, the remainder diagonal in either direction.

WAINWRIGHT BUILDING, St. Louis
Louis Sullivan

CARSON PIRIE SCOTT STORE, Chicago
Louis Sullivan

ROCKEFELLER CENTER BUILDINGS, New York
Reinhard & Hofmeister; Corbett, Harrison & MacMurray; Hood & Fouilhoux

LEVER HOUSE, New York
Skidmore, Owings & Merrill

TRINITY CHURCH, Boston
H. H. Richardson

PHILADELPHIA SAVINGS FUND SOCIETY BUILDING, Philadelphia
Howe & Lescaze

GENERAL MOTORS TECHNICAL CENTER, Detroit
Saarinen & Saarinen

LAKE SHORE DRIVE APARTMENTS, Chicago
Mies van der Rohe

S. C. JOHNSON & SON, INC., ADMIN. BLDG., Racine
Frank Lloyd Wright

MONADNOCK BLOCK, Chicago
Burnham & Root

DAILY NEWS BUILDING, New York
Hood & Howells

TVA NORRIS DAM & POWER HOUSE, Tennessee
Roland Wank, Architect-in-charge

BOSTON PUBLIC LIBRARY, Boston
McKim, Mead & White

STOCK PAVILION, Raleigh
Nowicki & Dalbiolo

CHRISTIAN SCIENCE CHURCH, Berkeley
Bernard Maybeck

WOOLWORTH BUILDING, New York
Cass Gilbert

CROW ISLAND SCHOOL, Illinois
Saarinen & Saarinen, with Perkins, Wheeler & Will

MANUFACTURERS TRUST BUILDING, New York
Skidmore, Owings & Merrill

UNITY CHURCH, Oak Park
Frank Lloyd Wright

NEBRASKA STATE CAPITOL, Lincoln
Bertram G. Goodhue

S. C. JOHNSON & SON, INC.; LABORATORY, Racine
Frank Lloyd Wright

UNITED NATIONS SECRETARIAT, New York
Wallace K. Harrison & Consultants

LINCOLN MEMORIAL, Washington
Henry Bacon

M.I.T. AUDITORIUM, Cambridge
Eero Saarinen

EQUITABLE BUILDING, Portland
Pietro Belluschi

ALLEGHENY COUNTY BUILDINGS, Pittsburgh
H. H. Richardson

UNIVERSITY CLUB, New York
McKim, Mead & White

CRANBROOK SCHOOLS, Michigan
Eliel Saarinen

MINERALS & METALS RESEARCH BLDG., I.I.T., Chicago
Mies van der Rohe

ALCOA BUILDING, Pittsburgh
Harrison & Abramovitz

MUSEUM OF MODERN ART, New York
Goodwin & Stone

PENNSYLVANIA STATION, New York
McKim, Mead & White

EXPERIMENTAL SCHOOL, Los Angeles
Richard Neutra

DODGE TRUCK PLANT, Detroit
Albert Kahn

100 MEMORIAL DRIVE APARTMENTS, Cambridge
Kennedy, Koch, Dahlgren, Gugeon & Bowen

CENTRAL LUTHERAN CHURCH, Portland
Pietro Belluschi

HOUSES

F. C. ROBIE, Chicago
Frank Lloyd Wright

E. J. KAUFMANN, Pennsylvania
Frank Lloyd Wright

TALIESIN WEST, Arizona
Frank Lloyd Wright

HENRY VILLARD, New York
McKim, Mead & White

WATTS SHERMAN, Newport
H. H. Richardson

AVERY COONLEY, Illinois
Frank Lloyd Wright

W. W. WILLITTS, Illinois
Frank Lloyd Wright

D. R. GAMBLE, Pasadena
Greene and Greene

PHILIP JOHNSON, New Canaan
Philip Johnson

WALKER GUEST HOUSE, Florida
Paul Rudolph

ELLER SCRIPPS, La Jolla
Irving Gill

WESTON HAVENS, Berkeley
Harwell Hamilton Harris

LOVELL "HEALTH HOUSE", Los Angeles
Richard Neutra

EDITH FARNSWORTH, Chicago
Mies van der Rohe

# 7: CHURCHES

WHEN ARCHITECTURAL RECORD'S PANEL of architects and architectural scholars nominated the buildings they deemed most significant during the one-hundred-year history of the American Institute of Architects, four churches led that building type in the balloting and are included among the fifty buildings being presented in this series.

It is a surprisingly large number of examples for a period that has not been distinguished for its religious buildings. By comparison, there were only three schools on the list, two apartment houses, one factory, and no hospitals or stores. Perhaps it may be concluded that although the level of quality in the design of the latter types was generally higher during this period, nevertheless a church program when in the hands of an architect of great talent offers challenges and satisfactions which evoke peak performance.

Certainly these four examples are acknowledged masterpieces. They have responded to the whole range of man's need which is nowhere more evident than in the requirements for a place of worship. The essentially one-story, one-space character of a church affords a high degree of plasticity in spatial organization, and the commonly shared desire that something beyond the ordinary be expressed there offers unusual freedom in manipulation of shape and surface. Any church offers rich opportunities for design, and in these churches the opportunities were richly fulfilled in ways which are thoughtfully spelled out on the following pages by a number of nominating-panel members who know the buildings and for whom the buildings have been "most significant."

Joseph W. McNair

***Trinity Church, Boston, 1873–77, H. H. Richardson. (Fourth)***

"So great is the vitality of this building that it seems to escape the usual trivialities of derivative works. The bold structural conception; the delicate and rich detailing; the subtle play of the interior light and shadows; the sureness of its choice of materials and colors; and the scale, proportions, and unity of the whole make this church a very great example of what architecture can mean to mankind."

***Pietro Belluschi***

"In this his first major work, Richardson's extraordinary talent enabled him to integrate into a powerful expression the chief architectural currents of his eclectic day. For here the classic rationality of form and plan that he had learned so well at the Ecole de Beaux-Arts are fused with a post-Ruskinian free handling of chiefly medieval forms, and with a feeling for the future and function of materials not unlike that of William Morris. It is no wonder that he is now so widely recognized as one of the chief founders of modern architecture."

***Donald D. Egbert***

"If Trinity Church on Copley Plaza were to be built today it would undoubtedly be considered anachronistic and extravagant. It belongs to a vanished past and is an example of unrestrained eclecticism that was natural at the moment of its creation. However, Richardson was not a strict revivalist. With Trinity Church and with most of his works he shows surprising originality as well as brilliance in composing building masses. The influence of Richardson on the architecture of his contemporaries was phenomenal. A review of the churches, schools and libraries that appeared in the American landscape

Wayne Andrews

from 1885 to 1900 will convince us of the *virility* of Richardson as originator, and of the *servility* of the average architect as imitator."

***A. Lawrence Kocher***

"Richardson brought a certain gentleness and poetry to the he-man Romanesque. This is especially true in Trinity Church. The Romanesque flavor is there; with the difference that while Richardson Romanesque had the Romanesque appeal, actual Romanesque was only Romanesque. It lacked Richardson.

There is some criticism of Trinity because it is held not to be all Richardson, since some of it is a later addition and much of it represents change from the original idea. But the Richardson compelling genius, in spite of change and addition, has resulted in an undying piece of architecture."

***Edwin Bateman Morris***

***First Church of Christ, Scientist, Berkeley, 1910, Bernard Maybeck. (Eleventh)***

"This is my favorite church in America. Photographs give us no conception of the grandeur of its scale, the extraordinary qualities of space and light in the main meeting room, or the vigor of the colorful detail. Maybeck used Japanese, Provençal Romanesque, Gothic, and Art Nouveau elements in concrete, steel, and wood, and faced the exterior with common transite, proving that eclecticism in the right hands can produce miracles."

***James J. Ackerman***

Bill Engdahl, Hedrich-Blessing

***Unity "Temple," Oak Park, Illinois, 1905–08, Frank Lloyd Wright. (Tied for thirteenth)***

"Wright's design for Unity Temple, in suburban Oak Park, was conceived with the prime objective of giving exterior expression to a room of worship. His chief problem lay in the subordination of the smaller rooms to the main temple. Many studies finally led to the skillful joining of these two elements, placing the entrance in between.

An early experiment in concrete, with the pebble aggregate exposed on the surface for texture, this church has a clearly defined exterior expression with its square stair towers at the corners giving an added emphasis to the importance of the main room, while the high windows, under the projecting roof slabs, separated by ornamented masonry piers, give to the whole a perfect sense of scale and a true indication of the actual size of the building." ***Alan Burnham***

"Although this church was the first major building to be constructed of cast concrete, it seems to me far more significant as a new "temple" form. Here, as in all really great architecture, the materials of the structure are subordinated to the subtleties of interior space and light. Unity Temple reveals itself as a symbol of its religious purpose through deeply felt *inner* space and thus to the *inner* man."

***Buford Pickens***

Roger Sturtevant

***Central Lutheran Church, Portland, 1951, Pietro Belluschi. (Tied for twentieth)***

"In the aesthetic housecleaning necessary to end eclecticism in architecture, much of human value has often been discarded along with real rubbish. Religious atmosphere in churches has been proven by countless generations to be a truly needed quality in their design. Yet few present day architects have been brave enough to use the proper components of this quality — vertical lines, pointed arches and colored light — lest their buildings not be "modern."

Belluschi's Church is outstanding in that it makes frank use of these three design elements in a structure handsomely suited to contemporary life. The architect has composed his structure with vast understanding of the nature of his materials — again a quality inherent in fine buildings of any age — but his personal touch is everywhere evident. The relation to the domestic scale of the neighborhood lends humanity to the design without the loss of dignity. Only in the joining of the apse and nave is there a question of unity."

***Leslie Cheek, Jr.***

"The secret that distinguishes much of Belluschi's work — a relaxed simplicity — is nowhere better seen than in this modest yet impressive city church. Its elements are not in the usual vocabulary of city church designers. Nevertheless as Belluschi handles them they create a sense of community welcome and of religious honesty and directness which is remarkable and perhaps one of the most creative impressions of current Protestant church ideals." ***Talbot Hamlin***

# BANK AND RENTAL OFFICES

***City National Bank Building, Beverly Hills, Cal.***

***Welton Becket & Associates***
***Architects and Engineers***

***Maynard Woodward***
***Design Director***

***Louis Nadorf***
***Project Designer***

***Clyde Whitlow***
***Project Architect***

***Murray Erick***
***Structural Engineer***

***Robert H. Carter***
***Landscape Architect***

Douglas M. Shapiro

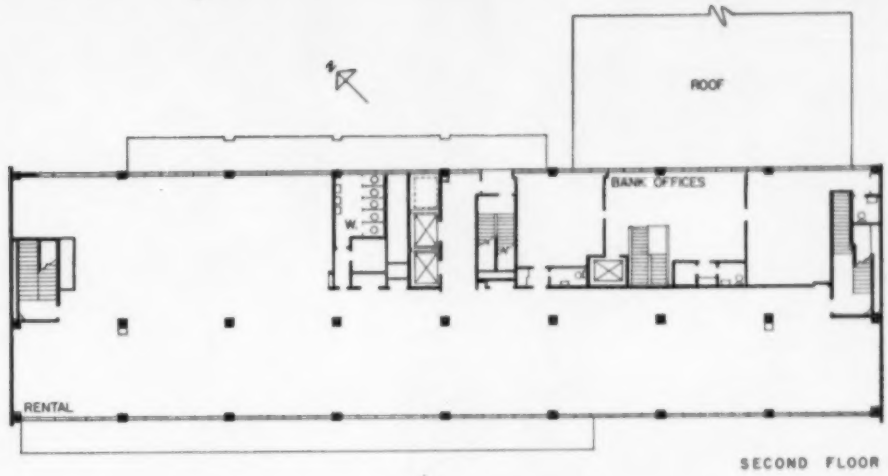
Douglas Fir Seasoned

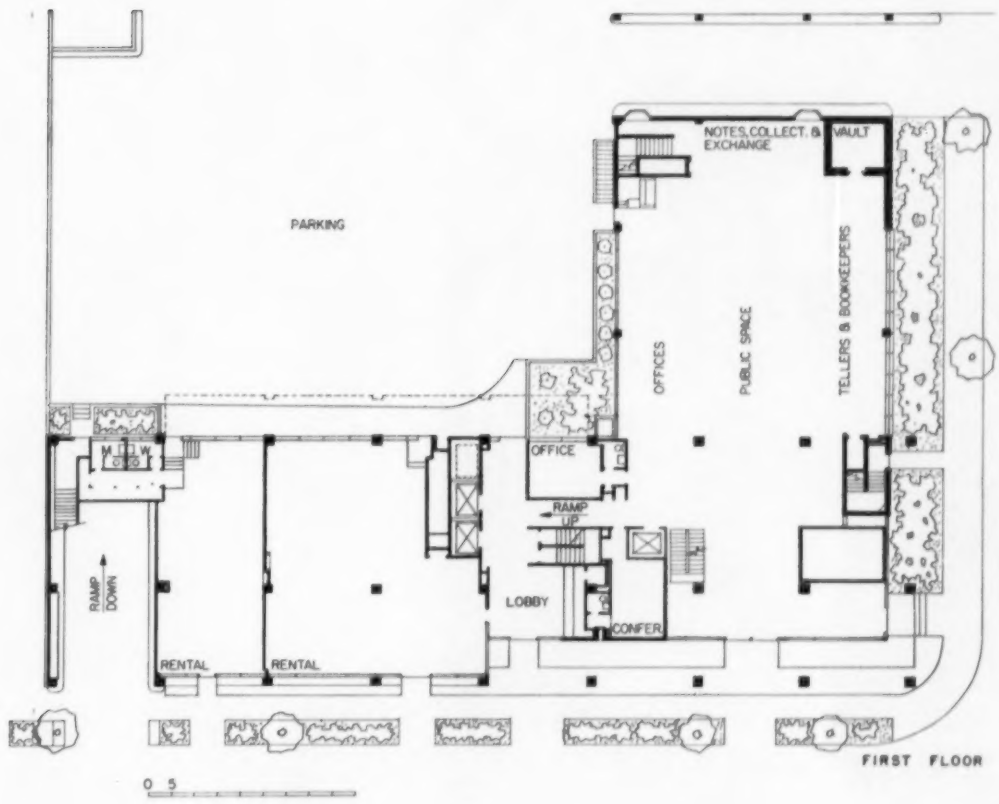
CITY NATIONAL BANK

LOCATED IN Beverly Hills at the intersection of Roxbury Drive, Brighton Way and Wilshire Boulevard, this office building and bank strikes a new and colorful note in the city's skyline. The structure was conceived as a speculative venture, but when the National City Bank of Beverly Hills signed a 65 year lease and became the principal tenant, the building was named for it. The area is apportioned in such manner that 18,000 sq ft are devoted to the bank, 16,000 to underground parking, and 105,000 to rentable area. The bank occupies parts of three floors; basement, ground and second.

Architecturally, there is interest in the handling of the southwest façade of the building, shown on the left page. The structural uprights are concrete painted white, the spandrels are aqua-colored Italian glass mosaic tile, and the infilling panels at ground level are marble-pebbled tile in a soft beige color. For sun protection, there are projecting alumilited aluminum eyebrows which project 5 ft from the building line and which are terminated by aluminum drop curtains approximately 3 ft high. The awning type windows are aluminum with the top panel opening inward.

BANK




## CITY NATIONAL BANK

*Part of the second and all of the third to sixth floors are rental space, while the bank occupies most of the basement, ground and second floors. An open stair (left) connects the three banking levels. The vault, record storage, employee lounge and mechanical equipment are below ground; tellers, officers, and loan department are at ground level; executive offices, board room and accompanying reception space are on the second floor*

Douglas M. Simonds

Douglas M. Simonds

**CITY NATIONAL BANK**

*The top photograph shows a typical executive office; note particularly the arrangement of lighting and the interesting use of contrasting materials.*

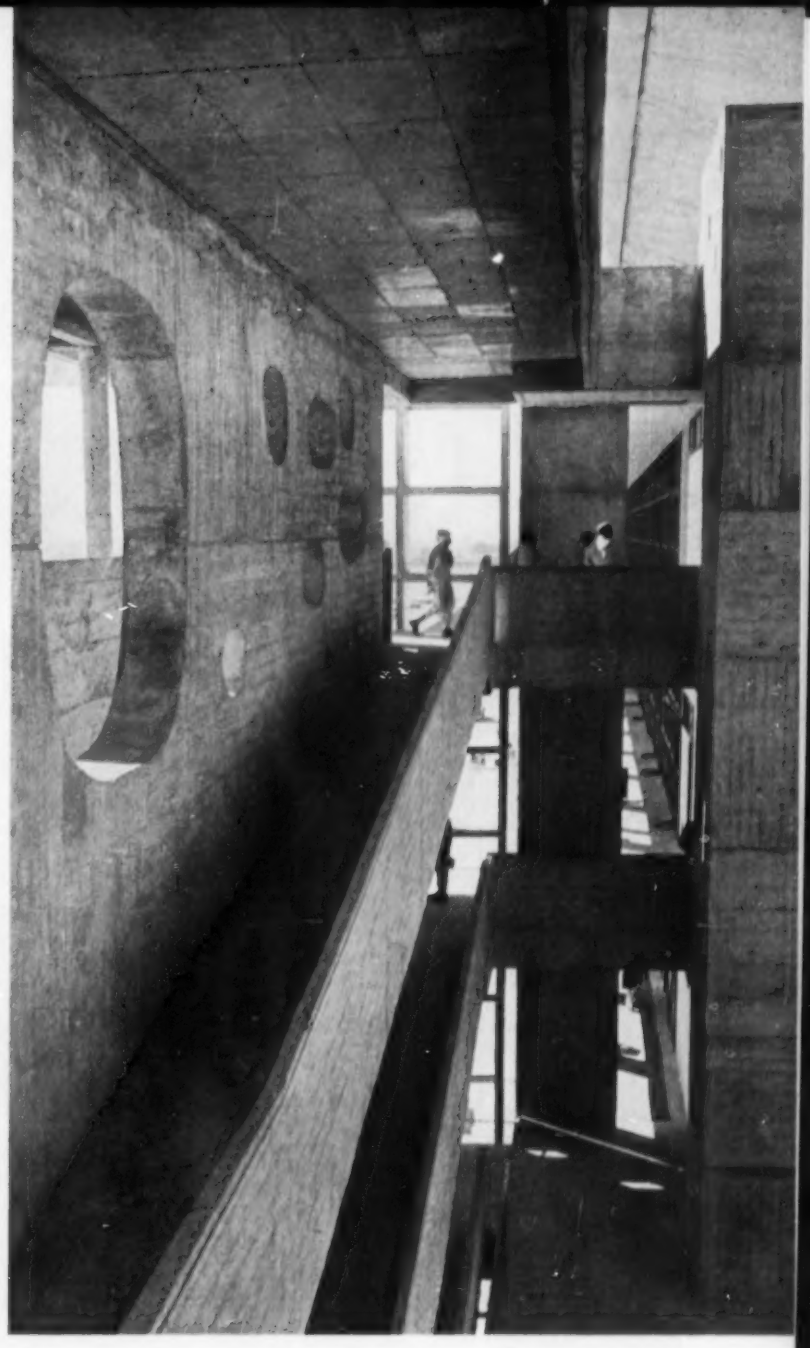
*The open stair (center, left) connecting the three-level banking space serves as a unifying element that, esthetically, "ties" them together.*

*At the lower level (bottom, left) the stairway ends in a reception area which serves the money vault and safe-deposit areas*

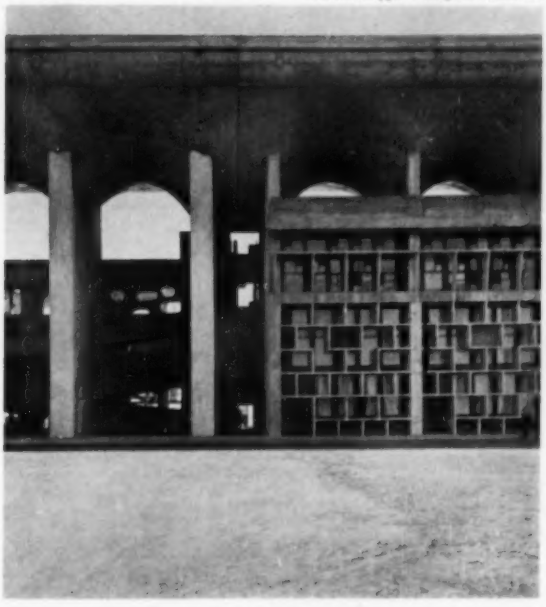
# CHANDIGARH

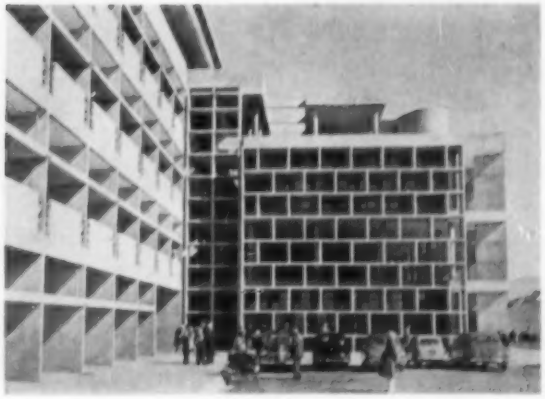
# CHANDIGARH

**The new capital of India's Punjab—one of the few total cities created in our time, and a symbol of Le Corbusier's new philosophy—is now taking firm shape. To supplement our previous coverage * on this work of Le Corbusier, Pierre Jeanneret, Maxwell Fry and Jan Drew, ARCHITECTURAL RECORD presents a recent photographic report by Ernst Scheidegger**



Ernst Scheidegger — Magnum Photos, Inc.

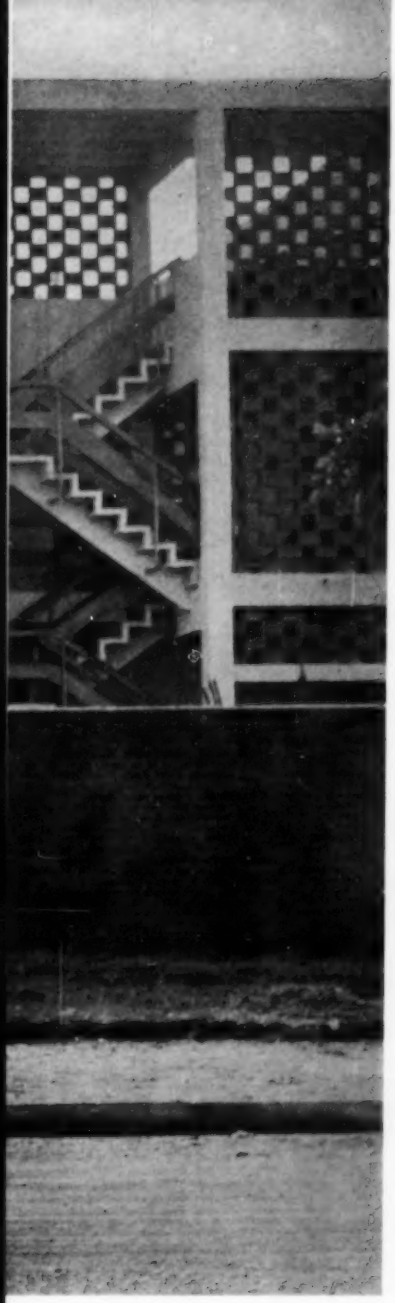




*The enormous sculptured forms of the high court building bear the strong stamp of Le Corbusier's new and exuberant approach to design. The parasol-roofed, sun-baffled structure is the major building in the governmental center to be finished and put in use. Court rooms are approached via an open lobby and ramps (above); offices are to the back of the building (right)*

* ARCHITECTURAL RECORD: *Sept., 1954 by Lewis Mumford; June, 1955 by E. Maxwell Fry; Nov., 1955 by Frederick Gutheim*

Ernst Scheidegger — Magnum Photos, Inc.



## CHANDIGARH

*The housing units, three of which are shown here, reflect a great fusion of cultures. General acceptance by the inhabitants appears quite good, but there are a few interesting objections — they fear the sunbreakers are insufficient barriers against dust and burglars, and there is no space in the houses for the holy cows. With the new redivision of Indian states, Punjab and Chandigarh will be larger than anticipated*

## CHANDIGARH

*Schools are already in full session — in and out of doors. The sector and traffic zoning plan of the city provides quiet zones suitable for open air classes, as at the elementary school shown above. An ornamental concrete grill screens the dramatic open entrance loggia of one of the colleges, shown in photo below*

Ernst Scheidegger — Magnum Photos, Inc.

# A CONTROLLED CLIMATE FOR SHOPPING

**In Minneapolis' Southdale Shopping Center by Victor Gruen, stores face on an air conditioned Garden Court and can be heated and cooled simultaneously by a heat pump**

SOUTHDALE'S AIR CONDITIONING system provides year-round comfort with amazing efficiency for several reasons. First, the architectural concept of stores faced inward upon a sheltered, central court reduces the outside wall exposure. Second, the court itself serves as a giant plenum chamber, providing tempered air to the stores. Third, conservation of energy in the air conditioning system cuts operating costs. (For example, the interiors of stores have to be cooled all year, due to lights and people, and in winter the rejected heat is distributed to the perimeter walls to negate the heat loss. Then, too, well water used for cooling in the summer becomes heated and is returned to a diffusion well. In winter, heat is taken from diffusion well water, and after being cooled it is returned to a deep well for reuse in the summer.)

Forgetting for a moment the rational aspects of Southdale's design, it does seem that the exterior, set amidst acres of blacktop, achieves a "single-building" unity at the expense of visual invitation to enter. Something is missing that might hint of the delights within. There are those who will agree with the idea of a non-committal exterior such as this. Others will wish that a more open, "seeing-through" effect had been devised.

### The Basic System

Southdale can expect a wide variety of weather, ranging from −30 F in winter to over 100 F in summer, so indoor climate control is a necessity. The centrally controlled air conditioning system heats and cools Dayton's — a branch of Minneapolis' largest department store, and owner of the shopping center — and a number of tenant stores. The other department store in the center, Donaldson's, which also has a downtown store, operates its own system.

As has been mentioned, the motivating principle behind the design was "conservation of energy." Merchandising areas are heat producing due to lights and people, and the interior zones are not affected by the weather outside. Such is the excess heat generated, that the outside temperature has to drop to five below before other heat sources must be called upon.

Thus no boilers are required for space heating. Instead the refrigeration equipment is designed as a heat pump, supplying hot water from condensers to heat the building, to temper the ventilation air, to heat (partially) domestic hot water, to operate the snow melting system for the truck tunnel ramps, and to warm humidification water.

The cooling capacity of the system is about 2000 tons: 700 tons for pre-cooling ventilation air, 700 tons for tenant stores and 600 tons for Dayton's. Ventilation air is cooled by water pumped from a deep well, tenant stores are cooled by self-contained package units from 2 to 15 tons in size, and the Dayton store is cooled by a chilled water system. Condenser water for the tenant stores and Dayton's comes from two deep wells.

### Ventilation Air

Two ventilation fans in the penthouse draw in 100 per cent outside air, temper it to approximately 70 F and discharge it into the court through a narrow grille that runs the length of the court. Preheating coils, filled with glycol to prevent freezing, can heat air at −20 to +35 F, after which the air passes over a second set of coils to be heated to 70 F. Heat for this tempering comes from condenser water of the tenant package air conditioners. If this is not sufficient,

*The Garden Court, 109 by 270 ft, acts as a plenum chamber to supply 70 F ventilation air to Dayton's store and tenant stores. Air enters*

additional heat can be obtained from the central refrigeration condensers. Any heat loss of the Garden Court is compensated by recirculating the air over heating coils by means of a third fan. At other times this fan is used to provide excess ventilation air to Dayton's when crowds are at peak capacity.

On the cooling cycle, the water coils use 50 F well water directly, raising the temperature 10 to 12 F, whereupon the water is used for condenser cooling and finally cooling for the gas engines which drive the refrigeration compressors.

The ventilation fans provide a positive pressure within the court so that ventilation air pushes itself through continuous grilles in front of every tenant space. Then, there is a grille at the rear of the store connected by duct work to an exhaust fan which pulls the air down into the basement storage rooms. From here it is drawn into the truck tunnel to replace the stale air. The contaminated air is exhausted to the atmosphere by means of a large fan in the penthouse.

**Dayton's Air Conditioning**

Ventilation air is ducted to the intakes of a series of air handling units grouped around a centrally located moving stairway well on each of two levels. These units are primarily for cooling since the heat gain from lights and people would tend to overheat the area otherwise. Chilled water for cooling is supplied from a refrigeration plant in the penthouse which includes five reciprocating compressors driven by five internal combustion natural gas engines. Two of the air handling units on the upper level are equipped with hot water coils to provide heat to the upper level during the night to offset the roof heat loss.

In the heating cycle, during the day, the heat gain from lights and people more than offsets roof loss. However, at the walls of the store, heat must be supplied day and night through small air handling units equipped only with heating coils. These run continuously during the day, and intermittently at night.

During the cooling cycle, these units are shut down, but cool air from the centralized fan coil units is diverted into the perimeter duct work to provide a curtain of cool air.

**Tenant Stores**

Self-contained package units handle the cooling load. Water from the central condenser system is piped around the building to remove heat from the package units. During cold weather, hot condenser water gives up its heat to the tempering coils of the ventilation air units in the penthouse. The package units do not run at night during the winter, and therefore are not producing heat. This causes no problem, because there is no ventilation air either. Roof heat loss in the tenant buildings is offset in the daytime from the heat given off by lights and people. At night, however, fan and coil units located in the service cores force warm air into the stores.

**Operation of Wells**

Plenty of cold ground water is available in the region of Minneapolis. It is not cold enough (50 F), however, to do a complete job of air conditioning, because water of 40 to 45 F is needed for dehumidification. Therefore a split system was used. Well water cools ventilation air to 75 F, while mechanical refrigeration absorbs the heat within the various spaces. Sufficient water is pumped through the ventilation air coils to handle the load for the court as well as to provide for condenser and domestic water requirements.

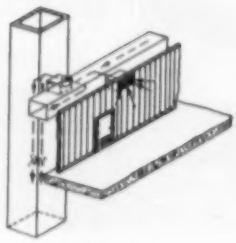
Water leaves the ventilating coils at 60 F and passes through the central condensers, its temperature rising to 75 F. It then enters condensers of tenant spaces, removes heat and goes up to 90 F. Some of this water is used for roof flooding and/or lawn sprinkling while the balance passes through the gas engine radiators and exhaust mufflers, adding another 10 or 15 degrees to the water. This heated water is diffused into an underground storage basin, some 300 ft deep, where it can be kept until required for the heating season. The cold water used at the beginning is pumped from a different strata, 400 to 600 ft deep.

*the court through a continuous slot above the wood screen*

*Air Conditioning Engineer: David Berks of Victor Gruen & Associates*

*Heat Pump Consultant: J. Donald Kroeker*

*Hydraulic Consultant: Adolph Meyer*



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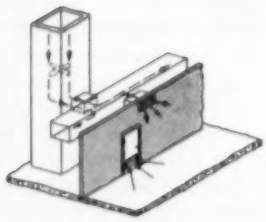

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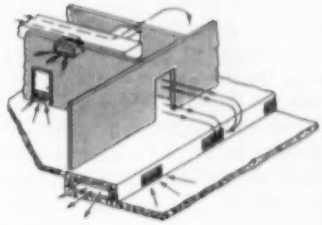

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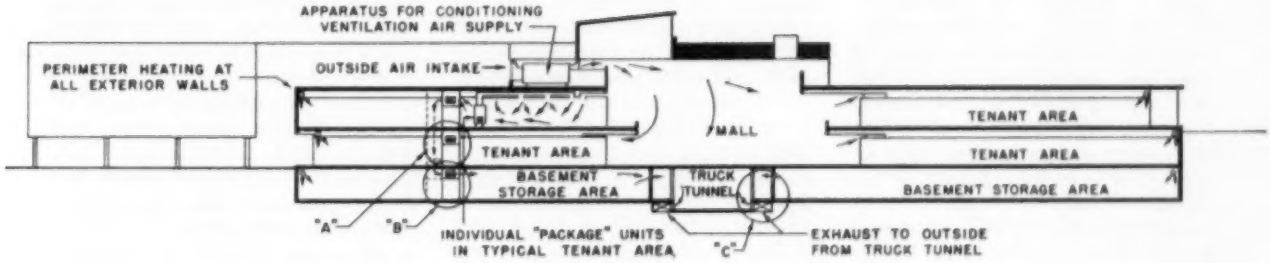
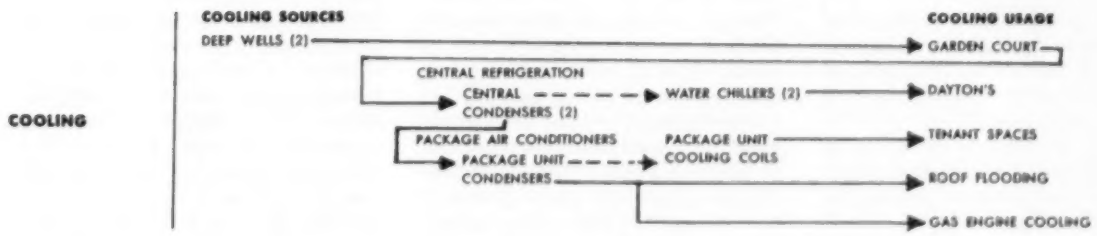
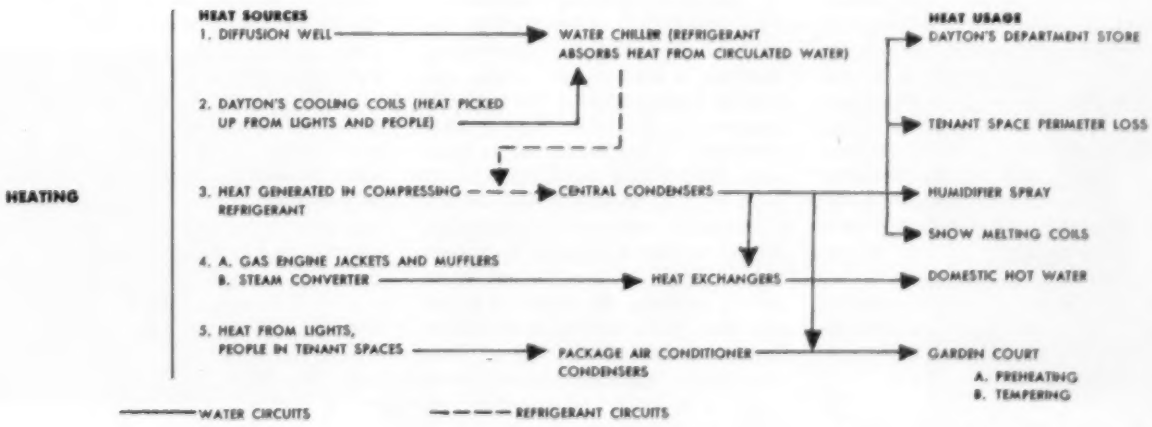
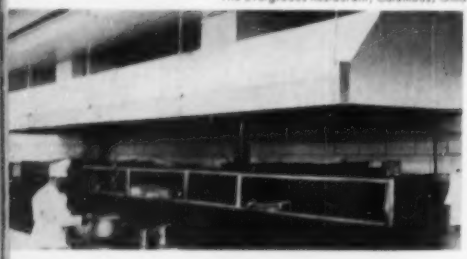


The Everglades Restaurant, Columbus, Ohio



# VENTILATION OF COMMERCIAL KITCHENS

**Most state and local sanitation codes require that commercial kitchen and dining room ventilation be "adequate" — but they offer no hint as to what "adequate" is. Here is some basic information to guide the architect and engineer in designing efficient and economical kitchen ventilation systems**


BY JACK A. WUNDERLE

Air Cleaning & Ventilation Engineer
Ohio Department of Health


GOOD VENTILATION is as integral and necessary a part of the kitchens and dining rooms of eating establishments as are the ranges, washers and even the walls and floors. It's the most important element to be considered in eliminating excessive heat, steam clouds, cooking odors, greasy vapors and even drastic temperature changes (particularly in winter if windows are used for ventilation). Without good ventilation, especially in kitchens, the resulting unfavorable working conditions decrease efficiency and increase irritability of employees, steam clouds hamper work in all departments and unpleasant cooking odors disseminated to the dining room promote customer dissatisfaction.

Ventilation may be defined as the process of supplying or removing air by natural or mechanical means to or from a space. There are two classes of ventilation: (1) general ventilation, which is the process of removing air from a general area, space, room or building; and (2) specific or local exhaust ventilation, by which a contaminant is captured at the source before it can be dispersed into the surrounding area.

General or dilution ventilation is customarily used for temperature, humidity, odor and comfort control. The standard for average conditions of ventilation has been commonly accepted as 10 to 30 cfm of outdoor air per person. ASHAE suggests that the minimum quantity of air required for spaces to be used for eating, recreation or manual work should not be less than 20 cfm per person. The Wisconsin Industrial Commission in their Heating and Ventilating Code, the Chicago Code and the Public Buildings Administration suggest 4 cfm per square foot of floor space as a minimum ventilation rate. Other sources base minimum rates on an air change basis; that is, the number of complete room volume changes per hour. Recommended figures vary from 15 to 40 air changes per hour.

Local exhaust ventilation is more effective than general ventilation. It requires less air movement and so results in less heat loss and lower power costs for the same degree of control. In addition to capturing the contaminants at their source, local exhaust acts also as a general ventilation system since the air to supply the exhaust hoods must come from the general room area. Usual practice is first to design the local exhaust system to control the contaminant sources and then to check the design volume against the general ventilation requirements. The exhaust requirements can be figured from the formula $Q = V_f \times A_h$, where $Q$ is the exhaust volume required, $V_f$ is the velocity of air at the face of the hood and $A_h$ is the area of the hood opening. The proper fan size is selected on the basis of this $Q$ value and the static pressure produced within the duct system (see discussion of Ductwork on page 198) — that is, unless a higher general ventilation rate than that produced by the exhaust volume is needed, in which case the higher rate should govern the fan size selected.

Unfortunately ventilating systems cannot be standardized, packaged and installed as a unit to do any and all jobs. The many variables — building dimensions, variety of kitchen equipment and equipment combinations, arrangement of equipment, building obstructions, local codes, etc. — dictate that the system be tailored for each application. Basically, a local exhaust system consists of hoods enclosing the source of contaminant generation, branch ducts connected to the hoods, one or more main ducts joining the branches, ductwork fittings, possibly a collector for contaminant removal in the exhaust air, and air-moving equipment to produce the necessary air flow through hoods and to overcome the resistance to the flow of air in the system. In the following paragraphs these various components of a typical kitchen ventilation system are discussed. Methods of determining exhaust hood requirements are presented in the Time-Saver Standards on pages 209, 211 and 213.

### *Hoods*

The purpose of all hoods is to capture contaminants in an air stream and to remove them from the working atmosphere. The hood exhaust volume must be sufficient to cause air flow into the receiving hood from all directions. It should produce an air current velocity which is adequate to control odors and vapors and which is unaffected by the cross-currents and drafts created by the opening and closing of doors and windows and by the operation of other mechanical ventilating equipment. Yet it should not itself produce unnecessary drafts. This air current or face velocity is the velocity of air as it enters the hood in the plane of the hood face. A number of factors enter into the selection of proper design face velocity, the most important of which are (1) the condition of contaminant release into the surrounding atmosphere and (2) the nature of the influencing zone of air surrounding the hood. If contaminants enter the surrounding air with high velocity, then the design face velocity will have to be high in order to trap them. As the contaminant velocity decreases to medium, low and zero, then the design velocity can also be lower. Likewise, if the body of air around the hood is relatively quiet, then the design velocity can be low. However, if it is in motion or composed of high-velocity cross-drafts, then the design velocity must be higher. Other factors which influence the selection of proper face velocities are the make-up air which is provided to the room and the use of side curtains along the hood parts not in use.

Most kitchen ventilation hoods are canopy hoods of two basic types: the freely suspended type and the shed type. The freely suspended hood is

supported (usually from above) over the surface to be controlled. All four sides are open to provide working space around the entire perimeter of the operating surface. The shed type generally extends outward from a wall and thus has three operating sides. Whichever type of hood is used, the distance $X$ between hood bottom and work surface should be kept to the minimum possible without interfering with operations and still consistent with good appearance. The amount of this open area greatly affects the exhaust volume required.

The hood size should be such that its edges extend beyond the outer edges of the range, broiler, fryer, etc., over which it is to be installed. In some localities this is regulated by ordinance. Where such is not the case, a minimum overhang or hood projection $R$ of 12 in. is considered necessary, and greater overlap is desirable. A common method of determining overhang is to multiply the distance $X$ from hood bottom to work surface by 0.4. Another method is to increase the hood dimension by 2 in. for every foot of distance $X$. Regardless of the method used a minimum overhang of 12 in. should be maintained.

Where sufficient headroom permits, it is desirable to provide a hood height $H$ of 2 ft. This plenum or chamber acts as a reservoir and prevents spillover by retaining excessive momentary puffs of smoke and steam until the exhaust system can handle them.

Aprons or sides extending from hood bottom to surface are often provided on those sides of the cooking units which are not in use. Use of such elements increases the effectiveness of the hood, decreases air requirements (face velocity and exhaust volume $Q$) and restricts carryout by cross-drafts. Oftentimes they are hinged or sliding to provide flexibility.

Obtaining uniform distribution of air inflow across the entire hood face is a desired goal in any hood design. In smaller hoods (4 to 5 ft or less) there generally is no problem unless short-circuiting of inflow is caused by low headroom, duct take-offs at hood ends and/or low hood height. In larger hoods, which are more problematical, better flow distribution may be obtained by baffling, subdividing, including multiple take-offs or otherwise compounding the hood. All take-offs should be made at the top and rear of hoods. Where multiple take-offs are employed, they should be spaced on not more than 6-ft centers. Where space limitations do not allow take-offs vertically, and the main exhaust duct must extend horizontally from the hood end at hood level, the use of an adjustable baffle-manifold arrangement with multiple openings is often the solution. Grease filters also tend to promote uniform air distribution.

### *Slot Type Exhausts*

Slot type exhausts, either of the straight lateral type or used in modified shed type designs, are not nearly so desirable as canopy type hoods. They increase cost of construction and cost of ventilation components, since the exhaust volumes required to control effectively a given operation are two to three times those necessary for the same operation with a canopy hood. They are not effective over distances of much more than 3 ft. In addition, slots are difficult to keep clean because of their inaccessibility. On those occasions when it may be necessary to use slot type exhausts (as in the case of overhead limitations), the slots should be made wide enough to permit access for cleaning. Grease filters should not be located near the slots if there is any danger of ignition, but should be placed at a safe distance along the exhaust duct yet still close enough so that the accumulated grease in the duct return preceding them cannot give trouble. Formulas for determining exhaust volumes of common slot type exhausts are given on Time-Saver Standards page 213.

### *Deep Fat Fryers*

Deep fat fryers, when not exhausted under the main range hood, may be exhausted locally by a branch duct from the main duct or by a separate system. Exhaust volumes can be determined, as in the case of range hoods, by using the formula $Q = V_f \times A_p$, where $V_f$ is a recommended face velocity of 50 fpm and $A_p$ is the peripheral area bounded by the forward corners of the exhaust hood and the fryer.

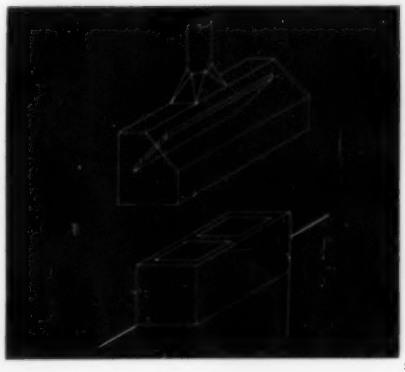
### *Steam Tables, Dishwashers*

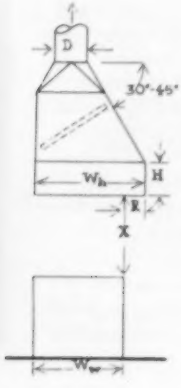
Hoods over steam tables and dishwashers do not require so calculated a design as those over ranges and other grease- and soot-producing appliances. They are provided to exhaust only steam and moisture, and so are not used in conjunction with such additional elements as grease filters.

Hoods over steam tables are generally of similar construction to range hoods. Exhaust volumes are calculated using the same formula: $Q = V_f \times A_h$. The recommended face velocity $V_f$ is 60 to 70 fpm.

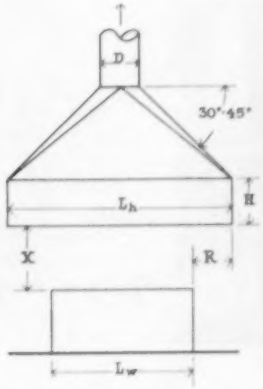
Separate and relatively small hoods and blowers are generally provided for mechanical dishwashers, with the air exhausted only at the ends of the washer, as shown in the drawing. These hoods exhaust steam and moisture which escape from the washer enclosure when dishes enter and leave. Exhaust volumes for dishwashers can be figured fairly generally, with no need for extended formula calculations. For a 9-ft dishwasher, exhaust volumes of approximately 1500 cfm are used; for 5-, 6- and 7-ft sizes, $Q$ is about 1000 cfm; and for smaller washers, 750 cfm should be the volume used.

*Shed type hood*






*Freely suspended hood*



### *Grease Filters*

Grease filters are desirable for large kitchen hoods for two reasons: (1) They remove oily vapors and droplets, thus preventing the accumulation of cooking greases in the ductwork, on exhaust fan blades, on building walls, etc. (2) They serve as diffusers and so tend to promote a uniform distribution of air over the hood opening. These filters must be changed or cleaned frequently, so they should be installed so that they can be removed easily. When they are heavily coated with grease, they not only drip excess grease, and increase measurably the system resistance, but they are also serious fire hazards. In some designs the filters are tilted slightly to permit drainage of excess grease and oil to drain channels and thence to a reservoir or container.

Where air exhaust volumes are so large that they cannot be handled by the filters, air noise can become a serious nuisance. To combat this, filters may be arranged in a V or W form, thus increasing the filter area and enabling larger air volumes to be handled.

Most grease filters are made to standard dimensions, varying from 1 to 3 in. in thickness, and are designed to handle from 150 to 250 fpm (low velocity type). There is also on the market a high velocity type which is said to work best at velocities of approximately 500 fpm. For good efficiency the velocity through any filter should be that recommended by the manufacturer. The grease filter area required (number of filters) is readily obtained by dividing the exhaust volume (cfm) by the filter manufacturer's velocity rating (fpm).

### *Ductwork*

The correct design and competent installation of sheet steel ducts (and hoods) is of utmost importance for the proper functioning of any exhaust system. Improperly laid-out ductwork often results in inadequate distribution of ventilation. Ducts should be as straight as possible. Where direction changes are necessary, they should be gradual rather than abrupt. Interiors of all ducts should be smooth and free of all obstructions, with joints either welded or soldered air-tight.

Round ducts are preferred over square or rectangular ducts and should be used wherever possible because of their lower perimeter per unit area ratio (lower friction loss per unit length) and because of their more uniform cross-sectional flow pattern. Where rectangular ducts must be used, they should be made as nearly square as possible.

For kitchen ventilation systems, an approved fire damper with fusible link in the ducts adjacent to the hoods is recommended to reduce the possibility of a grease fire spreading through the system. Access doors should be provided at the fire dampers to provide easy access for inspection, cleaning and replacement of the fusible link. Exhaust piping should be provided with tight-fitting clean-out doors of a size to permit easy cleaning of the grease ducts.

All exhaust systems should be constructed of approved materials, sizes and types, and installed in a permanent and workmanlike manner. Copper bearing steel is suggested by the Public Buildings Administration for reduction of corrosion effects in ducts, hood and fan. Aluminum, black iron, stainless steel and galvanized sheet steel are also used.

Duct sizes are determined by the quantity of air to be moved and the transport or carrying velocity to be maintained in the duct. Generally, to minimize the condensation of cooking by-products in the system, it is advisable to maintain a transport velocity of 1500 to 2000 fpm. See sample calculation on Time-Saver Standards page 211.

### *Fans and Motors*

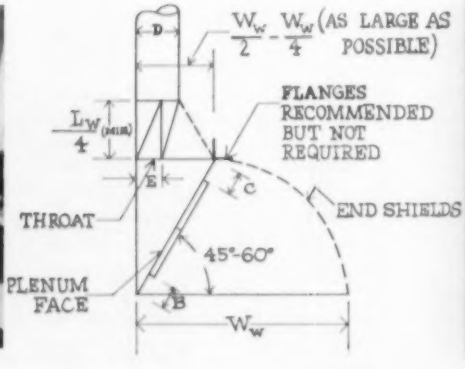
An exhaust fan is expected to establish and maintain a prescribed rate of air flow through the various elements of the exhaust system. In order to select the proper fan for an exhaust system, it is necessary to determine the amount of work the fan must do. This work takes the form of resistance to flow and is composed of hood entrance losses; friction losses due to the ductwork and fittings; resistance of make-up air inlets and wind back-pressure; shutter resistance at exhaust outlet; and resistance to collectors and grease filters (when filters are dirty, filter resistance may increase two or three times that of clean filters, and note of this should be taken in calculating the maximum system resistance for fan selection). Manufacturers' catalogs list static pressure ratings of fans (inches of water) and fan capacities (cubic feet per minute). The pressure-volume charts or curves in these catalogs should be used in fan selection to ensure that the required exhaust volume will be delivered even with conditions of maximum over-all system resistance.

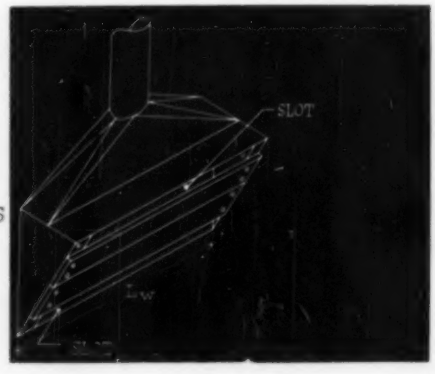
In general, centrifugal fan blowers rather than propeller-type fans should be used, because they are designed to operate efficiently against the static pressure of duct systems. Propeller fans are highly sensitive to any change in resistance pressure and hence may exhaust considerably less if any increase in system resistance develops. The centrifugal blower overcomes this disadvantage and has an additional advantage over the propeller fan in that the motor is not in the smoke- and grease-laden airstream. (Some local city ordinances prohibit the use of propeller fans whose motors are in the airstream.)

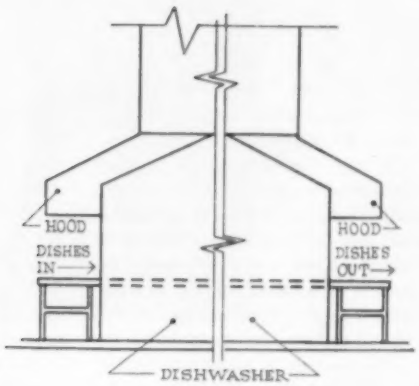
As a rule, it is better to have blowers and motors slightly oversize. If blowers are too small, the motors must operate at high speed and usually with consider-

*Lateral Exhaust (slant type hood)*

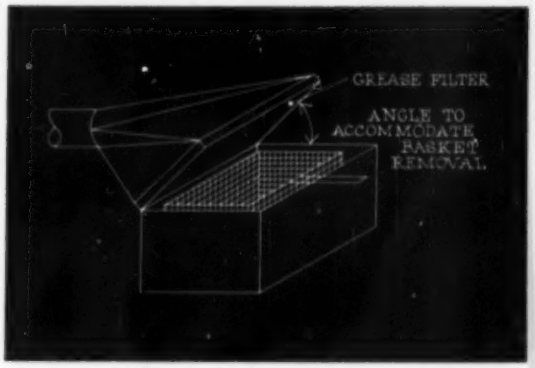
Biddles Restaurant, Columbus, Ohio






*Dishwasher hood*




*Deep fat fryer*

able noise, and current consumption will in most cases exceed that of a larger blower running at a slower speed. Motor speed regulators are sometimes used where maximum ventilation is not required at all times. Their use saves electricity and reduces wear, tear and noise. Another desirable feature is the use of overload cut-outs to prevent overloading of drive motors should the system resistance be suddenly reduced (*e.g.*, removal of grease filters for cleaning during fan operation).

Where flexible connections are made to the fan inlet and outlet, they should be of asbestos cloth for fire resistance. Fly screens are inadvisable on the outlet side of the fan since dirt, dust, grease, etc., soon clog the openings and prevent air passage. Doors should not be used since they may be blown or accidentally left shut. Automatic shutters which will open or close with fan operation and which will close with an excessive temperature rise (duct fire) are suggested.

### *Make-up Air*

In the ventilation of any space it is a cardinal rule that not only must the contaminants be removed but a like quantity of fresh air must be introduced to replace that exhausted. There are a number of reasons for the provision of make-up air: (1) to insure proper operation of exhaust hoods; (2) to eliminate high-velocity cross-drafts through doors, windows or cracks into the zone of influence of the hood, thus nullifying the control exercised by a properly designed exhaust hood; (3) to eliminate cross-drafts on workers; and (4) to ensure the proper operation of natural draft stacks on fuel-burning appliances, etc.

Make-up air should not be introduced in such a manner as to create an undesirable draft or to interfere with the effectiveness of hood operation. It is desirable to locate the air supply openings so that cross-ventilation of the workroom is obtained with no "pockets," "dead spaces" or short-circuiting. Properly located openings allow the air volume handled to be "used twice": first to supply general ventilation, and second to supply make-up air for the exhaust system.

In kitchens, replacement air is often brought from the dining area by placing registers or grilles in the partition separating the two areas. The slight static pressure thus developed in the dining room has the advantage of preventing kitchen odors from reaching the area, and in addition it helps to ventilate the dining area. Where such a method is used, there should always be two grilles of liberal proportions in the partition, preferably separated and located toward each side of the room.

The grille inlet velocities recommended by the American Standards Association are as follows:

| Height of Inlet above Floor (ft) | Inlet Velocity (fpm) |
|---|---|
| Under 8 | 120 |
| 8–12 | 250 |
| 12–18 | 500 |
| 18 and over | 1000 |

Knowing the permissible inlet velocity from the above table and the amount of air to be passed through the grilles (make-up volume), one can figure the necessary grille area ($A = Q/V$). The area so figured is the actual open area or "effective" area of the grille. One must add to this the area taken up by grille mesh in order to obtain the physical dimensions of the grille. In general, increasing the computed grille area by 50 per cent will approximate the proper over-all grille size.

Where dining spaces are air-conditioned, it may be desirable to reduce the amount of air taken from them in order to reduce the load placed on the refrigeration system and to provide the remaining air directly from the out-of-doors. This air may be supplied through properly located windows (summer only) or through sized ductwork with adequately spaced openings. Regardless of how it is supplied, the flow of air into the building and out through the exhaust system should be orderly, providing a blanket sweep of the room with fairly uniform air movement.

During the winter season, it is necessary to temper the air drawn from the outside. Tempered fresh air may be provided through the main heating system, if such is feasible, or through unit heaters. It is wise to arrange the make-up system so that fresh air may be drawn from the outside and either passed directly to the room (non-heating season) or passed through the heating element (winter season). In installations using steam or hot water elements, freeze-proof coils and automatic controls should be specified if there is a danger of heating coils being subjected to freezing temperatures.

The intake for the air supply should be located remote from any contamination sources (exhaust discharges, etc.). Where air drawn in from the outside may contain objectionable foreign matter, filters may be advisable at the inlets to remove dust, soot, etc. This additional resistance plus that due to any heating elements in the make-up air stream must be added to the over-all system resistance when determining exhaust fan sizes.

Finally, a note of warning concerning appliance flues. Caution must be exercised where fuel-burning equipment requiring flue venting (such as a gas-fired, booster water heater) is located near powerful exhaust equipment, since the exhaust equipment may pull air (back-draft) through the appliance flue. This illustrates another and most important point in favor of the balanced make-up exhaust system.

# CONSTRUCTION CONSIDERATIONS AND SPECIFICATIONS FOR LOCAL EXHAUST HOODS*

Competent design and correct installation is essential to proper functioning and satisfactory operation of any exhaust system. The following specifications are given as a guide to good construction and installation practice.

***Materials***

1. All construction should be of new and approved materials. Black iron welded, galvanized sheet steel riveted and soldered, copper clad steel, aluminum and stainless steel are materials suited for construction unless the presence of corrosive gases, vapors, mists or other conditions makes the use of such materials impractical. Galvanized construction is not recommended for temperatures exceeding 400 F.

2. For pipes or ducts used in the average exhaust system on non-corrosive applications, the following metal thicknesses are recommended:

| Diameter of Straight Ducts (in.) | U. S. Standard Gauge |
|---|---|
| 8 and less | 24 |
| Over 8 to 18 | 22 |
| Over 18 to 30 | 20 |
| Over 30 | 18 |

3. Ductwork should be located so as to require the minimum length of pipe and a minimum number of elbows and so as to be accessible yet protected from external damage.

4. Elbows, bends and angles should be a minimum of two gauges heavier than straight lengths of the same diameter.

5. Hoods should be a minimum of two gauges heavier than the straight sections of connecting branches and free of all burrs and sharp edges. Large hoods should be reinforced for rigidity, particularly along the edges, to prevent warping and buckling. If stainless steel is used, gauges may be reduced.

6. Use of flexible piping should be kept to a minimum. Where used, a non-collapsible piping should be employed. Asbestos or fireproof materials are necessary on hot applications.

7. On corrosive applications consideration should be given to non-corrosive materials and corrosion-resistant paints or coatings. Even where corrosion is not considered a problem, it may be advisable to apply a corrosion-preventative coating to both the inside and outside of the system to minimize costly maintenance and repair work, since all ductwork and system components are not mass-produced but tailor-made for the job.

***Construction***

1. Duct joints should be smooth and free of obstructions or screens and of as near airtight construction as possible.

2. Longitudinal duct joints should be lapped and riveted or spot-welded on 3-in. centers or less.

3. For minimum resistance to flow and turbulence, the lap on girth joints should be made so that, in the direction of air flow, the downstream end of duct sections is inside the upstream end of the next section. A 1-in. lap is used for ducts 19 in. or less in diameter, and a 1¼-in. lap for larger ducts.

4. Slip joints should be reinforced and free of burrs, obstructions and sharp edges.

5. All bends should preferably have a centerline curvature radius of 2½ times the duct diameters and never less than 1½ duct diameters. Elbows (90-deg bends) of 6 in. diameter or less should be of at least five-piece construction; over 6 in. diameter, of at least seven-piece construction; other bends sectioned in proportion.

6. Transition pieces in mains and sub-mains should be tapered. Where possible, the taper should be approximately 5 in. long for each 1 in. change in diameter. In the design of ductwork, care should be exercised to make sure that in going from a small to a larger duct the conveying velocity is maintained in the larger duct.

7. Branch ducts should enter the main near the large end of transition pieces and at a maximum angle of 45 deg (30 deg or less is preferred) measured between the centerlines of the ducts. Connections to the mains should be on the top or sides, not on the bottom. Branch connections should be staggered, and the connection of two branches in the same section of the main should be avoided. If two or more branches must enter in the same section, use an entrance angle of approximately 20 deg.

***System Details***

1. The main duct should be connected to the exhauster inlet by a split-sleeve drawband at least one pipe diameter but not less than 12 in. long. Approved flexible connections may be used for certain applications. The area of fan inlet and outlet should be at least equal to the area of the main pipe.

2. The duct system should be supported so that no weight is transferred to the connected equipment. Sufficient support should be provided so that the system will not collapse even though completely plugged with contaminant material. Recommended maximum supporting interval is 12 ft for ducts 8 in. or smaller and 20 ft for larger ducts.

3. A minimum clearance of 6 in. between ducts and ceiling, walls or floor is recommended.

4. Clean-outs or access openings should be provided every 10 or 12 ft, near each elbow, angle or duct junction and at damper locations. Dead-end caps are recommended within 6 in. from the last branch of all mains and sub-mains.

5. Where blast gates are used, they should be of sturdy construction and preferably placed near the connection of branch to main. A positive means should be provided for locking, bolting or otherwise permanently fastening in place to prevent manipulation after the system has been balanced.

6. Round ducts should be used wherever possible. Where clearances prevent the use of round ducts, rectangular ducts as nearly square as possible are permissible. Metal gauge, lap and other construction details should be equal to those of round ducts the diameter of which equals that of the longest side of the rectangular duct.

7. Automatic fire dampers should be provided where pipes pass through firewalls.

8. Ducts passing through non-fireproof roof or walls should have an outer sleeve with at least 1 in. air space. The sleeve should be not less than 2 in. from a wooden member.

9. Fire dampers, explosion vents, etc., should be installed in accordance with National Fire Protection Association Codes and/or local fire ordinances.

10. Electrical equipment and wiring should be installed in accordance with the National Electrical Safety Code. Electric wiring should be enclosed in metal conduits.

*Reprinted from "Industrial Ventilation Manual," by the American Conference of Governmental Industrial Hygienists, 1954.

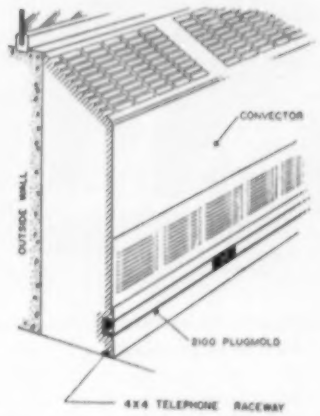
# POWER BUILDING WIRED FOR MAXIMUM INTERIOR FLEXIBILITY

FLEXIBILITY IS THE KEYNOTE of the new Department of The Interior Building in Portland, Ore. Designed by John Graham and Company, Architects-Engineers, of Seattle, the power building features an electrical system which makes possible arrangement of interior spaces for maximum utility.

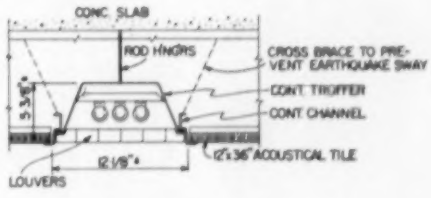
The plan shown below of a typical floor in the office wing indicates the underfloor conduit system serving electric and telephone outlets. As can be seen, four branch panelboards and three telephone panels at either end and in the center of the building serve each floor. Electric and telephone conduits are run under each concrete floor slab from these panels. The 1-in. electric cable serves outlet boxes, one of which is centrally located in each bay. Additional outlet boxes, energized from these centrally located boxes, can be located anyplace in the floor slab. Two outlets are also wired into each of the 14 columns which are spotted along the center of each floor on 24-ft centers. In addition, a continuous electrical plug-in strip is recessed in the bottom of the continuous convector runs around the perimeter of each floor.

The telephone system is installed in a similar manner. A 2-in. conduit runs down the center of each floor to serve telephone outlet boxes at the top of each column, just under the slab. Outlets run from these boxes can be located anyplace in the floor above. In addition, the bottom of the heating convector, just under the plug-in strip, affords approximately a 4- by 4-in. continuous raceway on the perimeter of the building for telephone wires.

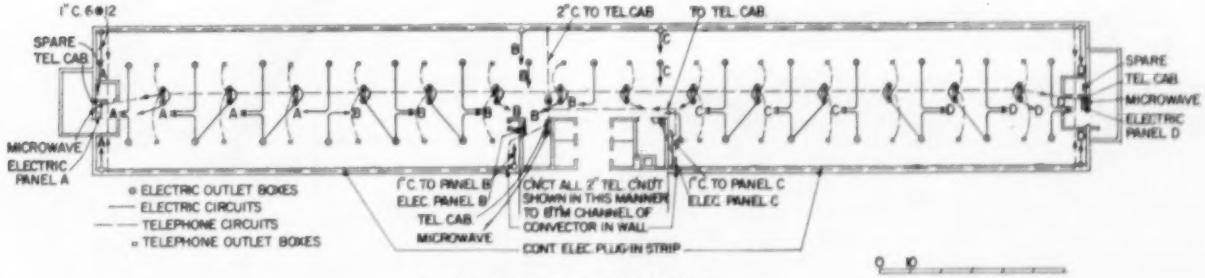
The lighting system is planned so that tenants can install ceiling height partitions and not interfere with the lighting pattern even for small offices. Continuous troffers are hung from the floor slabs in rows that are 4 ft on centers. These troffers not only house lamps but also, as shown in the drawing at right, form hangers which support the acoustical tile hung ceiling. Each tile can be removed for access to the underfloor electrical conduit. In the initial installation each continuous troffer was divided into alternate 4-ft lamp sections and 4-ft empty sections. The empty sections were provided with blank covers which could be removed so that ballasts and lamps could be added to make a continuous run of fluorescent lamps. Likewise, lamp sections could be replaced with blank covers, if desired, for complete flexibility. The troffers, with louvered bottoms, were designed for two- or three-lamp operation, using standard 4-ft 40-watt fluorescent lamps.



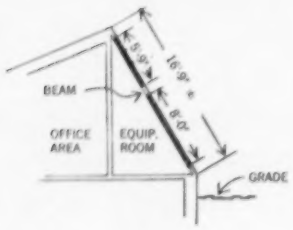

*Continuous electrical plug-in strip and telephone raceway are recessed in bottom of perimeter convectors*

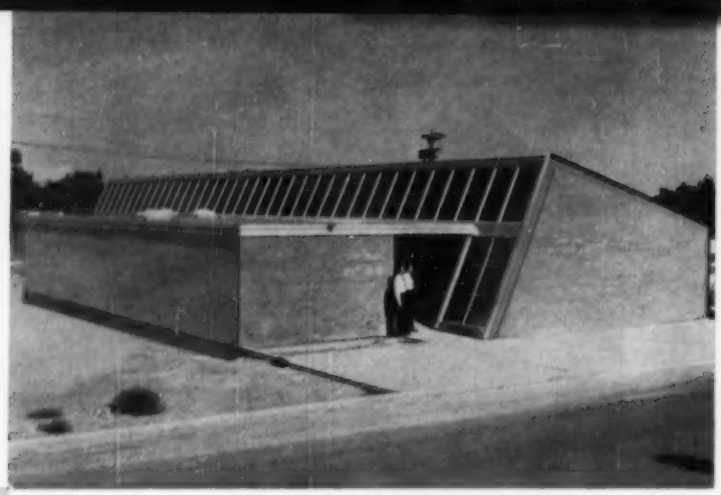



*Continuous fluorescent troffers hung from floor slab support ceiling tiles*

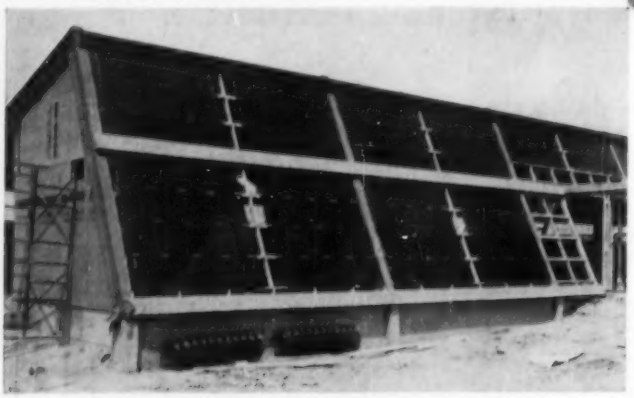

1"C. 6●12
2"C. TO TEL CAB
TO TEL CAB
SPARE TEL. CAB
MICROWAVE
ELECTRIC PANEL A
SPARE TEL. CAB
MICROWAVE
ELECTRIC PANEL D
● ELECTRIC OUTLET BOXES
ELECTRIC CIRCUITS
TELEPHONE CIRCUITS
▫ TELEPHONE OUTLET BOXES
1"C. TO PANEL B ELEC. PANEL B TEL. CAB MICROWAVE
CNCT ALL 2" TEL CNDT SHOWN IN THIS MANNER TO BTM CHANNEL OF CONVECTOR IN WALL
CONT. ELEC. PLUG-IN STRIP
1"C. TO PANEL C ELEC. PANEL C
0 10

*Typical floor in office building*



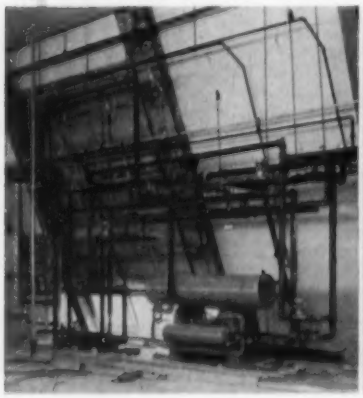



Photos by Rose Photo Studio, Albuquerque



*Black aluminum collector panels enclose integral water channels ½ in. wide by ⅛ in. deep*

*A section and a close-up of the network of pipes which carry heated water from the collector panels into the heating system. The tanks are the water chiller and condenser of the heat pump*



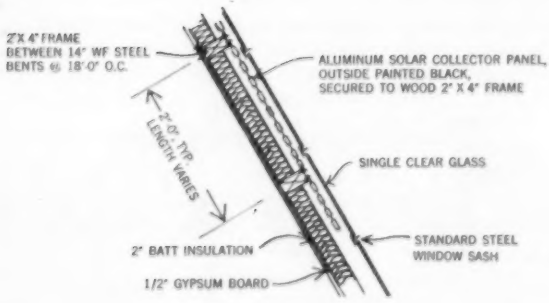
*South wall separates office space from equipment room. Light from skylights bounces off wall and lights room*

## SOLAR-HEATED OFFICE BUILDING

SOLAR HEATING has graduated from the stage of research or use in "solar houses" to actual every-day commercial operation. Architects Stanley & Wright, AIA, of Albuquerque, N. M., have conceived a practical and attractive office building to house the solar heating system which was designed by the engineering firm of Bridgers & Paxton, who also own the building.

The system itself is based on a bank of collector panels composed of silk-screened aluminum sheets which are fusion-welded under pressure between platens and then "blown up" to form interlacing channels through which water can flow. These panels — 800 sq ft of them — are painted black with a specially prepared paint that has a reflectivity of almost zero. They face south, of course, and the heat that is absorbed by the water coursing through the channels is run through radiant-heating panels in the ceiling and floor.

An integral part of the system is a 6000-gal water storage tank which is


2"X 4" FRAME BETWEEN 14" WF STEEL BENTS @ 18'-0" O.C.
ALUMINUM SOLAR COLLECTOR PANEL, OUTSIDE PAINTED BLACK, SECURED TO WOOD 2" X 4" FRAME
2'-0" TYP. LENGTH VARIES
SINGLE CLEAR GLASS
2" BATT INSULATION
STANDARD STEEL WINDOW SASH
1/2" GYPSUM BOARD

*Engineers Donald Paxton and Frank Bridgers stand on the threshold not only of the office building which houses their solar heating system — but also of a challenging new era of heating and cooling*

## COMBINES GOOD ARCHITECTURAL AND MECHANICAL DESIGN

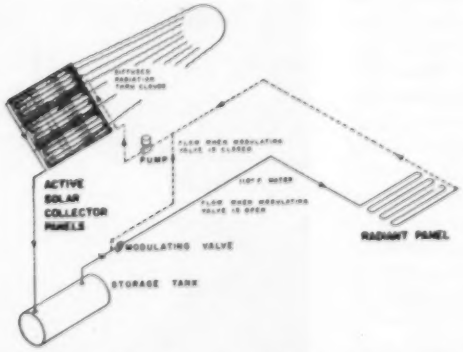
sunk underground and insulated with 4 in. of fiber glass block. This tank can store enough heated water from the collectors to heat the building for three days. If, however, dark, cold days continue for a longer period than three days, the system can be switched to activate a heat pump operation. The heat pump system extracts heat from the stored water (even when its temperature is as low as 35 F), compresses the heated refrigerant to an even higher degree of heat and then passes on this heat to the water in the radiant heating system. The heat pump is utilized without the solar collector in warm weather to provide cooling for the building. In this cooling cycle, heat extracted from water in the storage tank is passed along to an evaporative water cooler which discharges it to the outside. The subsequently cooled water in the storage tank is passed directly into the radiant panel system.

In the spring and fall, when heating is required during the night and early morning in Albuquerque and cooling in the afternoon, a modulating valve can separate the radiant system from the collector-to-storage-tank system, and the tank can store up daytime heat for nighttime heating while the evaporative cooler cools the building. The evaporative water cooler can also be used in the summertime as the sole cooling medium if the cooling load is not too high (in which case the heat pump system would be used).

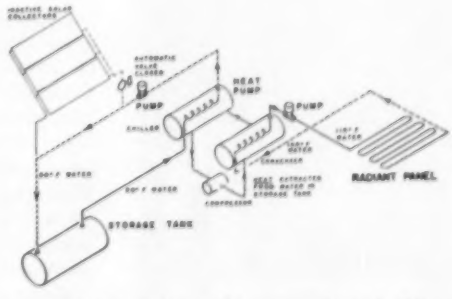
The building itself, with a gross floor area of 4300 sq ft, is framed with seven welded steel bents 18 ft on centers, with wood joists spanning between the bents. Most of the building was constructed on grade, except for a small basement of 200 sq ft. Cost of construction, including the heating system, was about $13.60 per sq ft.

The drafting rooms of the three firms which occupy the building are spotted along the pitch-roofed section. Indirect lighting enters this section through skylights along the top and bounces off the south wall to eliminate the need for artificial lighting during the day. The south wall is dropped vertically from the peak of the sloping roof, separating the office area from the equipment room. The offices of the three firms are in the flat-roofed section.

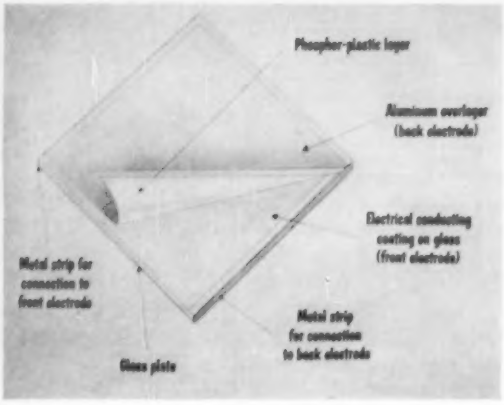
Bridgers & Paxton feel that the most important element in considering this type of building for other sections of the country is the amount of storage required. In Albuquerque, where the number of degree-days per year is 4389, a three-day storage period suffices. In other areas, such as New York, which has 4989 degree-days per year, a longer storage period might be necessary. Other factors would have to be considered also, such as the cost ratio of conventional fuels to electricity, the cost of materials and labor, the cost of the land itself — and, of course, sunlight. To ensure an unobstructed source of sunlight for this building, the lot to the south was purchased so that no future tall building could block the heat supply.




*When modulating valve is open, 110F to 140F water from collectors flows directly through tank to heating system. When it is closed, water circulates from collectors to tank, storing heated water. Then cooled water can be used in the radiant panels*




*During extended dark days, heat pump heats building. Heat pump can also be used for summer cooling, with cooled water from chiller going directly into radiant system and extracted heat being discharged to the outside through evaporative water cooler*


Phosphor-plastic layer
Aluminum overlayer (back electrode)
Electrical conducting coating on glass (front electrode)
Metal strip for connection to front electrode
Metal strip for connection to back electrode
Glass plate

## "ELECTROLUMINESCENT" GLASS PANELS PROVIDE INTEGRATED LIGHTING

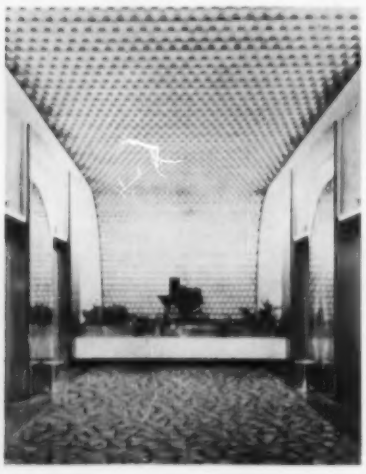
ROOMS OF LIGHT — with walls, ceilings and possibly even floors as sources of illumination — may be part of the construction of tomorrow. This phenomenon will be realized by means of *electroluminescence*, which is a natural progression in sources of light from the familiar point (bulb) and line (tube) sources to panels of light. Introduced by Westinghouse after years of research, electroluminescent panels are still not ready for commercial use. However, it is expected that they may be ready for marketing after another two years of development.

The panels, shown above illuminating a room with shadowless lighting, consist of 1-ft square glass plates ⅛ in. thick, each of which is coated with a transparent but electrically conducting film. Over this is spread a layer of polyvinyl choride plastic in which is embedded a zinc sulfide-type phosphor. An aluminum conducting coating completes the panel, which thus has two conducting layers separated by a dielectric. When electricity is applied, the phosphors in the phosphor-plastic layer give off diffused light through the glass plate.

Even a variety of color will be possible with electroluminescence. Since some phosphors have more than one emission band, frequency affects the color emitted. White is obtained by mixing together red, blue and green phosphors. It is entirely possible that rooms of the future will have two knobs for controlling complete electroluminescence. One will adjust voltage to regulate brightness, and the other will adjust frequency to regulate color emission. The illumination of the room illustrated is 50 ft-candles, the brightness is 100 ft-lamberts and the efficiency is 3 lumens per watt.

## DECORATIVE LIGHTING EFFECTS FOR DALLAS STATLER HOTEL

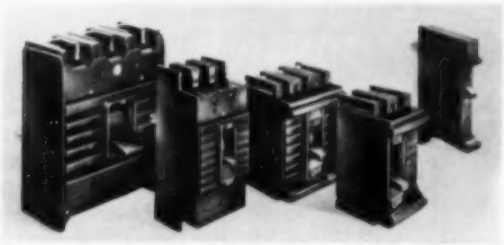
SOME UNUSUAL AND DRAMATIC TECHNIQUES of lighting public spaces have been conceived by architect William B. Tabler for the Dallas Statler Hotel. Practical as well as decorative, they combine color and design in translucent acrylic plastic in such a way as to relieve what otherwise might be a monotonous lighting pattern.



A basket-weave ceiling in the elevator lobby is fabricated from dozens of 2-in.-wide strips of ⅛-in.-thick translucent white Plexiglas woven around ovoid brass rods spaced at 6-in. intervals. The ends of the rods are supported in steel channels in 3-ft sections which are invisibly joined at the top. These sections, supported on wires, can be lowered for replacement of fluorescent lamps. To keep the fluorescent tubes invisible through the openings in the weave, 3- by 4-ft sheets of Plexiglas are mounted between the woven strips and the lights. The ceiling pattern is continued down the wall at the end of the corridor to provide backlighting for a silhouette of the State of Texas.

Strips and squares of colored translucent Plexiglas combined into abstract patterns of line and color add interest to the 40-ft expanse of corrugated white luminous ceiling above the cashier's and registration desks. The plastic grill-work, which was assembled by cementing, is composed of gray translucent square rods punctuated at intervals with the squares and strips of yellow, red, blue, green and white.

*(Continued on page 214)*



## MODULAR CIRCUIT BREAKERS AND CASES

MODULAR-DESIGN MOLDED CASE circuit breakers which make possible flexibility and economy of installation have eliminated the need for custom-built panelboards. There are now four different standard panel assemblies available with single and double bussing to accommodate E, F and J frame StA-Breakers with main capacities up to 600 amp.

The complete line of StABreakers, shown above, ranges from a slim $1\frac{1}{16}$-in. single-pole type E at the right to the 225-amp three-pole type J at the left. These breakers are simply "stabbed" into the appropriate panel for a job, as shown in the installation photograph at right, to provide the protection required. When modification of service is necessary, breakers can be removed easily and replaced by other units of the proper type or rating. With the selection of breakers available, compactness is assured within the rating limits, especially with the $1\frac{1}{16}$-in.-wide single-pole NE-S breakers. These narrow units are supplied with ratings from 15 to 50 amp to double the number of lighting circuits served by a single panel enclosure unit. Filler strips are supplied to assure dead front construction when panel space is reserved for future circuits.

The four panel assemblies, shown in the photograph at right, range from an enclosure 16 in. wide by 48 in. high for single-row bussing for 225 amp main to an enclosure $28\frac{3}{4}$ in. wide by 60 in. high for double-row bussing for 600 amp main. These panels make it possible to select and install the proper size panel at the beginning of a job according to the estimated amount of breaker protection required and then to order and install the exact number of StABreaker units, taking into account any last-minute circuit changes, when the building is ready. *Federal Pacific Electric Co., 50 Paris St., Newark 1, N. J.*

## GLARELESS PRISMATIC CEILING LENS PLATE

A CEILING LENS PLATE has been introduced which is said to have a negligible glare factor and a visual comfort factor of 100 per cent for all room sizes and for all lighting levels. The *Prismalume Controlens No. 6024* is a lens plate of prismatic plastic which carries the claim of keeping the apparent brightness in any normal viewing angle, between 45 and 90 deg, below 200 ft-lamberts while distributing a generous amount of light to the work area. Average lighting levels up to 300 ft-c are said to be possible without discomfort from sidewise overhead glare.

The 2-ft-square lens can be used singly for two or three standard 20-watt lamps; in combination for troffers or rectangles of any size with fluorescent lamps of 4, 6 or 8 ft; or to cover an entire ceiling. Each lens is slightly concave downward, with translucent struts and an edge flange which rests on any flat support. Adjacent edges butt together tightly. Transparent plastic T-bar strips provide shadowless supports for the lenses. Each unit weighs only $4\frac{1}{2}$ lb and can be cut or drilled. The prisms are on the underside; the upper surface is flat. The installation shown at left is in Holophane's New York office. *Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.* *(More Products on page 225)*

## INSULATING STRUCTURAL PANEL

*Asbestos Transilop* (AIA 19-D) describes the construction of this insulating structural panel, made with an insulating board core faced on both sides with *Asbestos Flexboard*, for heavy and light construction. It covers the basic physical characteristics of *Transilop*, pictured at left, and follows with three sections on its use in curtain wall construction over either steel or wood framing, for roof decks and as interior walls. Design data together with specifications for painting and decorating are included. 36 pp. *Johns-Manville, 22 East 40th St., New York 16, N. Y.*

### Modern Sheet Copper Practices

(AIA 12) Publication C-1 is a spiral-bound workbook of drawings and specifications intended as a guide to architects, specifications writers and sheet metal workers on the correct uses of sheet copper. 110 pp. *The American Brass Co., Waterbury 20, Conn.**

### Architectural Metal Products

(AIA 15) This 4-page brochure announces the Flour City architectural metal products. More detail is offered in three other brochures: *Metal Windows* (AIA 16-E), 24 pp; *Curtain Walls* (AIA 17-A), 12 pp; *Metal Doors* (AIA 16-E), 12 pp. *The Flour City Ornamental Iron Co., 2637 27th Ave. So., Minneapolis, Minn.**

### Custom Wallcovering

This catalog and price list of matching fabrics and wallpapers also includes a section on metal furniture. 26 pp. *Louis W. Bowen, Inc., 37-06 36th St., Long Island City, N. Y.*

### Glass Mosaic

Presents architectural and decorative glass tile for floors, walls, ceilings, panels, murals, table tops, etc., manufactured by the Societa Anonima Italiana Del Vetro D'Ottica in Italy. 8 pp. *American Import & Export Co., 815 Land Title Bldg., Philadelphia, Pa.*

### Contemporary Lighting

File folder contains a complete line of commercial and residential lighting fixtures and portable lamps. *EJS Lighting Corp., 921 East Pico Blvd., Los Angeles 21, Calif.*

### Brisk Metal Products

(AIA 14-B-4) Details extruded aluminum louvers, solar canopies and vent housings. 8 pp. *Brisk Metal Products, 103 Park Ave., New York 17, N. Y.*

### Case Plumbing Fixtures

Leaflet catalogs plumbing fixtures and includes chips of 32 colors in which they are available. *Case Mfg. Corp., 33 Main St., Buffalo, 3, N. Y.*

### Wiring Devices (AIA 31-C-7)

Catalog 29 lists and describes a complete line of wiring devices and enclosed switches. *Arrow-Hart & Hegeman Electric Co., Hartford, Conn.*

### Window Washing Systems

Booklet 2022-A describes *Tramrail* window washing systems in different types of buildings, stressing their safety features. 16 pp. *The Cleveland Crane & Engineering Co., Cleveland Tramrail Div., Wickliffe, Ohio.*

### The Massapequa Story (AIA 19-B)

Describes the use of the *Tero* system of engineered timber construction in providing modern educational facilities for the mushrooming school population of Massapequa, N. Y., at about a 35 per cent reduction in costs. *Timber Engineering Co., 1319 18th St., N.W., Washington 6, D. C.**

### Rapid Combustion

*Pressures Developed by Rapid Combustion* is a report of investigations to determine the pressure effect of high combustion rates inside closed buildings. It develops a formula for determining necessary vent area to prevent damaging pressures. $1. *Factory Mutual Engineering Div., 1151 Boston-Providence Turnpike, Norwood, Mass.*

### General Purpose Circuit Breakers

Bulletin 3411 describes the principle, design, operation and application of the hydraulic-magnetic type of general purpose circuit breaker. 20 pp. *Heinemann Electric Co., 254 Plum St., Trenton 2, N. J.*

### Foamglas Building Insulation

(AIA 37-B) Booklet FB-101 contains information on the latest recommended procedures for application of *Foamglas* cellular glass insulation on flat roofs, pitched roofs, parking decks, curtain walls, core walls, wall linings, ceilings and perimeters. 24 pp. *Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22, Pa.**

### For Modern Exteriors (AIA 23-L)

Numerous color photos show various siding materials, including horizontal siding and vertical panel siding in various treatments and textures. 16 pp. *Masonite Corp., Home Service Bureau, 111 W. Washington St., Chicago 2, Ill.**

### Man of Vision (AIA 20-B-1)

This booklet carries the development of metal lath from the first perforated sheets of Peter Naylor through the improved modern-day product, covering fire safety, design versatility, durability and economy. 16 pp. *Metal Lath Mfrs. Assn., Engineers Bldg., Cleveland 14, Ohio.**

### Shopping Centers

*. . . Framed with Steel.* Presents the advantages of steel construction in shopping centers, stressing low cost, strength, flexibility, adaptability, appearance, safety and speed of construction. 16 pp. *American Institute of Steel Construction, Inc., 101 Park Ave., New York 17, N. Y.**

### Unibestos Insulation

Catalogs *Unibestos* pipe insulation and presents a new way to specify proper thickness for pipe insulation. 40 pp. *Union Asbestos & Rubber Co., 111 West Perry St., Bloomington, Ill.**

**Other product information in Sweet's Architectural File, 1056.*

(More Literature on page 260)

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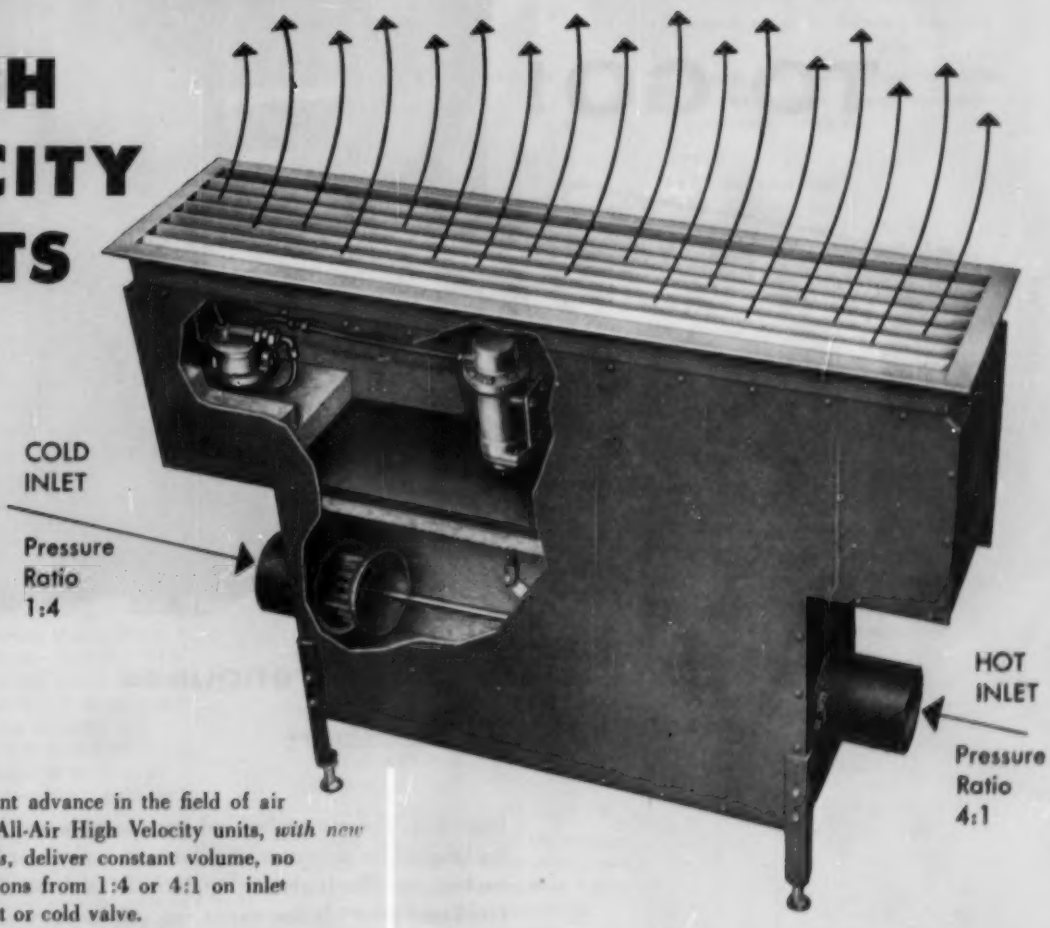


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# DETERMINATION OF EXHAUST HOOD REQUIREMENTS—1

*By Jack A. Wunderle, Air Cleaning & Ventilation Engineer, Ohio Department of Health*

## FREELY SUSPENDED AND SHED TYPE HOODS

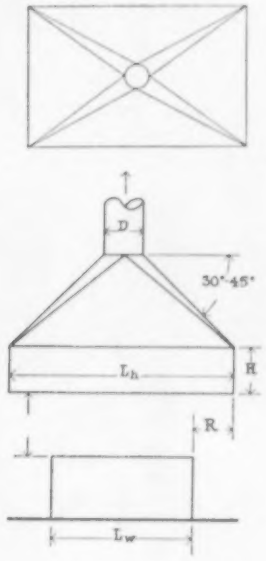
There are three basic methods of calculating exhaust requirements for freely suspended and shed type hoods: (1) the face velocity-area method, (2) the ACGIH method and (3) the capture velocity method. Following are an explanation and sample calculation of each. The sample calculations are based on an assumed kitchen which is 30 ft long by 25 ft wide by 10 ft high, in which are located two kitchen ranges, each 4 ft wide by 8 ft long. Two kitchen range hoods, one freely suspended and the other of the shed type, are each 5 ft wide by 10 ft long and located 4 ft above the work surface. These dimensions, it can be seen, fulfill better than the minimum overhang requirements outlined on page 197. The width overhang is exactly 12 in., and the length overhang, which is often proportionately larger, is 24 in. The symbols used in these calculations and on the diagrams are as follows:

$Q$ = exhaust volume, cfm
$V_f$ = face velocity, fpm
$V_v$ = average velocity in vertical plane under edges of canopy, fpm
$V_c$ = control velocity, fpm
$X$ = perpendicular distance from work surface to hood bottom, ft = 4 ft
$W_w$ = width of work surface, ft = 4 ft
$L_w$ = length of work surface, ft = 8 ft
$W_h$ = width of hood opening, ft = 5 ft
$L_h$ = length of hood opening, ft = 10 ft
$A_w$ = area of work surface, sq ft
$= 4 \times 8 = 32$ sq ft
$A_h$ = area of hood opening, sq ft
$= 5 \times 10 = 50$ sq ft
$P_w$ = perimeter of work surface, ft
$= (2 \times 4) + (2 \times 8) = 24$ ft
$P_h$ = perimeter of hood opening, ft
$= (2 \times 5) + (2 \times 10) = 30$ ft
$U$ = volume of kitchen, cu ft
$= 30 \times 25 \times 10 = 7500$ cu ft
$D$ = diameter of ductwork, in.
$C$ = number of air changes per hour

### Face Velocity-Area Method

This method is an easily used one for estimation purposes but possesses disadvantages for accurate design work. No provision is made in the calculations for various hood shapes, sizes and designs, nor is there account taken of the variable factor $X$ (distance from hood bottom to work surface).

The volume $Q$ of air to be exhausted is determined by multiplying the area $A_h$ of the hood face (for both the freely suspended and shed type hood) by the face velocity $V_f$: $Q = A_h \times V_f$. The exhaust volume $Q$ found in this manner is then checked to determine whether it is adequate to provide the minimum general ventilation requirements (e.g., 20 to 25 air changes per hour) figured on the entire kitchen room volume. Should the exhaust fan selected on the basis of the $Q$ value not provide the required minimum air change rate, it should be increased in size to provide necessary air turnover. On the other hand, if the fan provides more than the minimum air change rate, its size would not be decreased, since the exhaust volume it provides has been calculated to be necessary for proper hood operation.




**Freely Suspended Hood**

***Example***

$$Q = V_f \times A_h$$

Using a design face velocity of 55 fpm (recommended by the American Gas Association):

$$Q = 55 \times 50 = 2750 \text{ cfm}$$

For both hoods:

$$Q = 2 \times 2750 = 5500 \text{ cfm}$$

To check this figure against the minimum required rate of 20 to 25 air changes per hour, first change the total exhaust volume of the two hoods to cubic feet per hour:

$$Q = 5500 \text{ cfm} \times 60 = 330{,}000 \text{ cfh}$$

Divide this figure by the room volume to find the number of air changes per hour:

$$C = Q/U = 330{,}000/7500 = 44$$

This figure is well over the desired minimum of 20 to 25, and so the fan selected on the basis of $Q = 2750$ cfm for each hood will meet the requirements of the room.

### ACGIH Method

The ACGIH (American Conference of Governmental Industrial Hygienists) method has a distinct advantage over the face velocity-area method in that calculation of exhaust volumes may be suited, by selection of proper design velocity, to the two most common hood types. Actually, it is a modification of the face velocity-area method.

For shed type hoods, it is recommended that a design face velocity of 100 fpm be used and that the exhaust volume so calculated be checked to ensure that it is not less than:

$$Q = 50\ P_h \times X$$

For canopy hoods, this formula is suggested:

$$Q = 1.4\ P_w \times X \times V_v$$

Velocity $V_v$ in this formula ranges from 50 to 250 fpm depending on cross-drafts, condition of contaminant release, etc.

***Example***

For the shed type hood:

$V_f = 100$ fpm
$Q = V_f \times A_h$
$= 100 \times 50 = 5000$ cfm

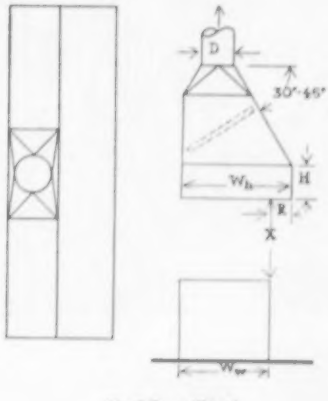
As a check, the exhaust volume must be greater than:

$Q = 50\ P_h \times X$
$= 50 \times 30 \times 4 = 6000$ cfm

Since the exhaust volume calculated by the first method is less than that determined in the check method, the fan selected on the basis of $Q = 5000$ cfm should be increased in size to meet the requirements of 6000 cfm. For the canopy hood the lower velocity figure of 50 fpm will be used.

$Q = 1.4\ P_w \times X \times V_v$
$= 1.4 \times 24 \times 4 \times 50 = 6720$ cfm

On this value of $Q$ should be based the selection of a fan for the canopy hood.




**Shed Type Hood**

Hood sketches adapted from designs appearing in the ACGIH "Industrial Ventilation Manual," 1954, and ASA Code Z9.1–1951.

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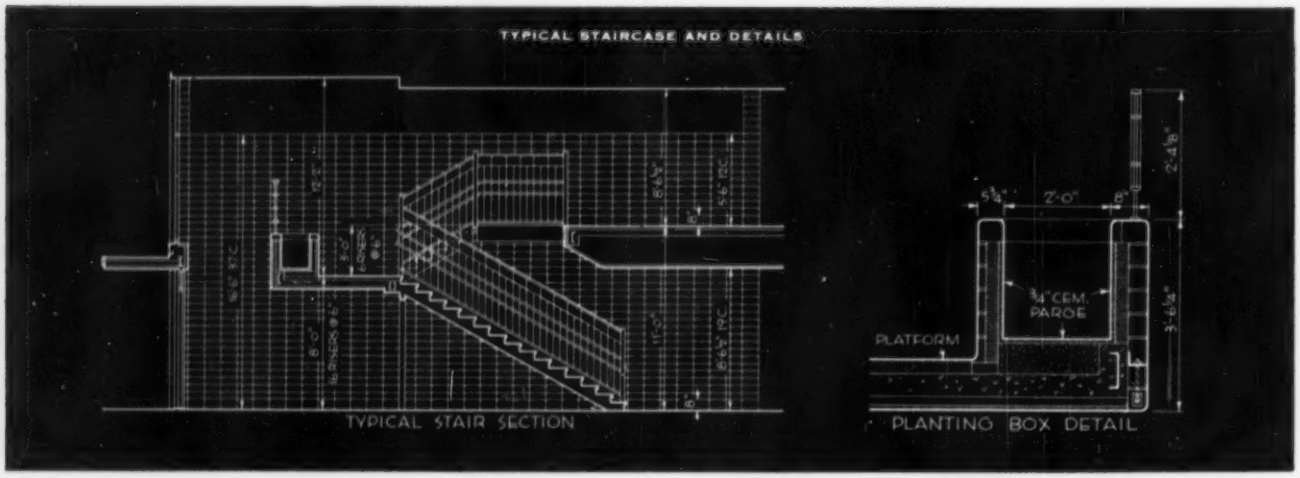


*Elementary School, Ellenville, N. Y.*
*Howard C. Snyder, Reginald E. Marsh, Starett and Van Vleck, Associate Architects.*

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# DETERMINATION OF EXHAUST HOOD REQUIREMENTS—2

*By Jack A. Wunderle, Air Cleaning & Ventilation Engineer, Ohio Department of Health*

### Capture Velocity Method

The third, and most accurate, method of calculating hood exhaust volume requirements is by the use of *capture velocity—velocity contour* principles. It is the preferred method of calculating exhaust hood requirements because it takes into consideration variable hood dimensions, variable hood to work surface distances and control velocities.

*Capture velocity* may be defined as the velocity at any point in front of a hood necessary to capture the contaminated air at that point and cause it to flow into the hood. This differs from *face velocity*, which is the velocity at the face of the hood. By the proper selection of capture velocity, the designer can ensure the removal of contaminants without outward escapement and with the minimum exhaust volume and power expended. Professor DallaValle of Georgia Tech, who is a respected authority in this field, proposes the use of 30 fpm as the capture velocity to be applied at the outer edge of the working surface of hooded kitchen appliances. This suggested velocity of 30 fpm has merit in that the human body is relatively insensitive to air movements less than 30 fpm, and hence, for worker comfort, it is advisable to keep cross-drafts below this amount.

The *velocity contour* concept states that the velocity distributions (expressed as percentages of the velocity across the hood open area) will be the same for geometrically similar hoods and obstructional arrangements. The importance of this velocity contour relation is realized when one considers that, regardless of the actual dimensions involved, the positions of velocity contours (lines of equal velocity) are the same for similar hood shapes. Thus, when velocities are expressed in terms of face velocity and distances in terms of hood dimensions, a single pattern of contours is representative of all hoods of the same general shape.

These principles are represented by two formulas:

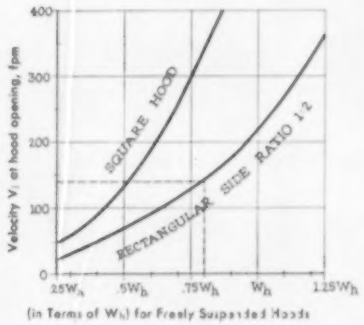
For freely suspended hoods, either square or with side ratios of 1:2:

$$(1) \quad Q = 14.5\ V_c \times W_h^{0.2} \times X^{1.8}$$

For rectangular shed type hoods:

$$(2) \quad Q = 8.5\ V_c \times W_h^{0.2} \times X^{1.8}$$

To eliminate laborious mathematical calculations, DallaValle has represented these formulas graphically in the curves reproduced on this page. To further simplify matters, the units of measurement are in terms of hood width $W_h$. For example, a hood of length $2W_h$ is twice as long as it is wide. Similarly, if the distance from the work surface to hood bottom is $1.5\ W_h$, then it is one and one-half hood width. It will be noted that there are several curves on each of the graphs. These curves are labeled for different side ratios (hood width: hood length). A control velocity $V_c$ of 30 fpm was used in calculation of these curves. Knowing the side ratio, hood width and distance $X$, the face velocity $V_f$ can be found from the curves and the hood exhaust volume calculated using the formula $Q = V_f \times A_h$.




(in Terms of $W_h$) for Freely Suspended Hoods

The hood exhaust volume thus calculated will provide a minimum control velocity of 30 fpm at the outer peripheral edge of the work surface. In fact, one may expect more than a 30-fpm velocity, since some contribution will be realized from the chimney effect generated by the hot surfaces. If higher or lower velocities are wanted, the values may be increased or decreased by the ratio of the desired velocity to 30 fpm. Where velocities are reduced, the hood should be lowered to the minimum distance from the work surface and the open areas not in use enclosed with suitable metal shielding.

### *Example*

Using the graphical solutions to formulas (1 and (2), one can determine the hood face velocity which will provide a control velocity of 30 fpm at the edge of the range.

Side ratio = hood width/hood length
= 5/10 = 1:2

$X$ (expressed in terms of hood width)
$= 4/5\ W_h = 0.8\ W_h$

For the freely suspended hood:

$V_f$ (from the graph) = 142 fpm
$Q = V_f \times A_h = 142 \times 50 = 7100$ cfm

For the shed type hood:

$V_f$ (from the graph) = 88 fpm
$Q = V_f \times A_h = 88 \times 50 = 4400$ cfm

If a control velocity of 40 fpm is desired instead of the 30 fpm from which the curves were calculated, the values of $Q$ should be increased by the ratio of 40 to 30:

$Q = 7100 \times 4/3 = 9467$ cfm
$Q = 4400 \times 4/3 = 5867$ cfm

### DUCTWORK

One may determine the proper duct size (or check a proposed installation for proper duct size) by dividing the exhaust volume through the duct by the recommended transport velocity. As an example, suppose it were required to exhaust 4500 cfm with a transport velocity of 1800 fpm:

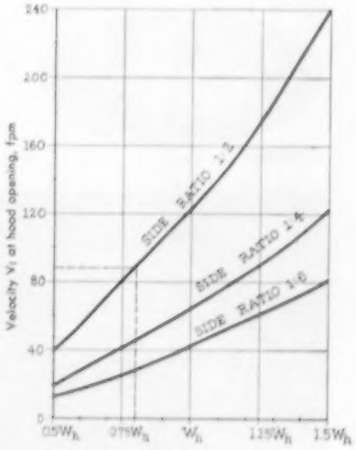
$$\text{Duct area} = \frac{4500 \text{ cfm}}{1800 \text{ fpm}} = 2.5 \text{ sq ft}$$

$$\text{Area of a circle} = \pi D^2/4$$

$$D = \sqrt{\frac{4 \times A}{\pi}} = \sqrt{\frac{4 \times 2.5}{3.1416}} = 1.787 \text{ ft}$$

$1.787 \text{ ft} \times 12 \text{ in./ft} = 21.4 \text{ in.}$

Therefore, a 20-in. duct should be used. Where the duct size calculated is an odd size or fraction, the next smaller available duct size should always be selected. The smaller size increases rather than decreases the duct velocity and thus prevents deposition or settling of entrained contaminants in the system as might be the case if a larger size duct and hence a slower velocity were used. If a 21-in. duct were available, it would be used. However, the usual sheet metal fabricator will have patterns in ½-in. steps for sizes through 5½ in.; 1-in. steps for sizes 6 to 20 in.; and 2-in. steps for sizes 22 in. and larger.

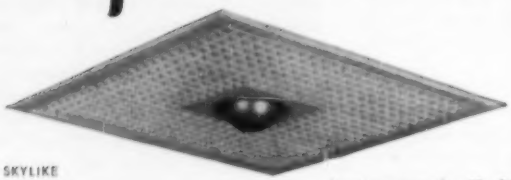



X (in Terms of $W_h$) for Rectangular Shed Type Hoods

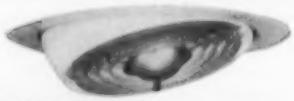
Charts from "Design of Kitchen Range Hoods," by J. M. DallaValle, Air Conditioning, Heating and Ventilating, August 1953.

Piggly Wiggly, Inc. Supermarket, St. Louis, Mo. Owner and Operator: Wm. H. Brown

# Skylike makes the most out of lighting in... SUPERMARKETS



SKYLIKE



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*If you are modernizing or planning new units it will pay to investigate the Silvray-Skylike line for supermarket lighting.*

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# DETERMINATION OF EXHAUST HOOD REQUIREMENTS—3

*By Jack A. Wunderle, Air Cleaning & Ventilation Engineer, Ohio Department of Health*

## SLOT TYPE EXHAUSTS

For slot type exhausts the methods of calculating exhaust volumes vary depending on the design of the exhaust system. Ducts are usually sized to maintain a duct velocity of 1500 to 2000; slots sized to maintain a slot velocity of 2000 to 2500 fpm.

### Lateral Exhaust (Slant Type)

Slots extend along the top and bottom of a plenum face, on which removable metal slats of various widths are adjustable for best control. Two types of construction are common: (1) transition piece tapered down to throat opening *E*; (2) duct is connected (as shown by dashed line) to top point of slant hood. Design proportions of *E*, *B* and *C* for these two styles are as follows:

| | *E* | *B* + *C* |
|---|---|---|
| Type (1) | .05 $W_w$ — .1 $W_w$ | .1 $W_w$ — .2 $W_w$ |
| Type (2) | .1 $W_w$ — .2 $W_w$ | .05 $W_w$ — .1 $W_w$ |

The formula used for determining Q is:

$$Q = V_m \times A_w$$

where $V_m$ is the minimum ventilation rate in cfm per sq ft of hot surface, and $A_w$ is the area of the work surface. The recommended values of $V_m$ vary with the ratios between width and length of work surface, as follows:

| $W_w/L_w$ | $V_m$ |
|---|---|
| 0 — .09 | 100 |
| .1 — .24 | 125 |
| .25 — .49 | 150 |
| .5 — .99 | 175 |
| 1.0 — 2.0 | 200 |

### Lateral Exhaust (Rear or Side Draft)

The formula used for determining Q is:

$$Q = V_f \times A_w$$

where the recommended values for $V_f$ are 150 fpm for hot surfaces with end shields and baffles, and 200 fpm without shields and baffles. The slot should be sized to maintain a slot velocity of 2000 to 3000 fpm. The length of the slot is the same as the length of the work surface, and the width can be determined, after Q is calculated, by substituting in the formula $W_s = Q/(V_s \times L_s)$, where $V_s$ is the desired slot velocity and $L_s$ is the slot length.

The exhaust hood should be extended out over the appliance as far as use permits, but not less than $W_w/4$. The maximum width of the appliance should be 4 ft, but ideally it should be only 3 ft. The maximum length of the transition piece should be 4 ft, using multiple take-offs for larger hoods.

### Lateral Exhaust (Slot Type)

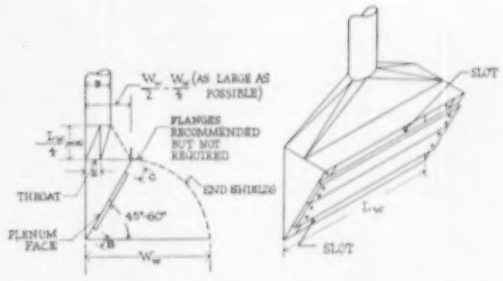
With the slots on a vertical surface, the formula for determining Q is:

$$Q = 2.8\ V_f \times L_s \times W_w$$

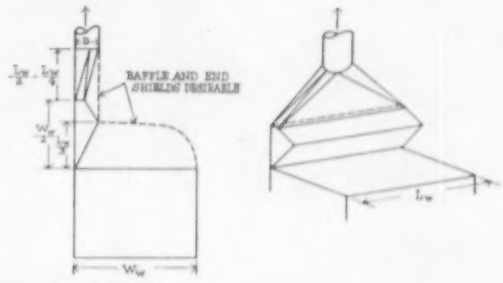
where $L_s$ is the slot length, $W_w$ is the width of the work surface and the recommended values of $V_f$ are 150 to 250 fpm depending on room conditions and degree of work surface enclosure. If the surface is enclosed, the slots can be sized for a slot velocity of 1000 fpm. However, if the surface is not enclosed, they should be sized to maintain a velocity of 2000 fpm or higher.

### Lateral Exhaust (Enclosing Hood Type)

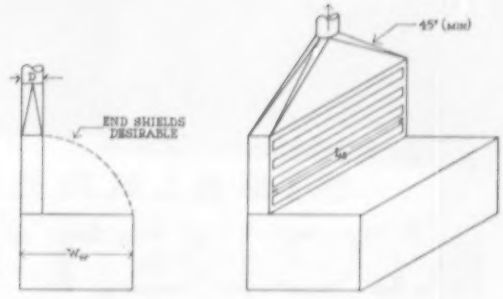
This type of enclosing hood, actually not a slot type exhaust but a combination of shed type hood and lateral exhaust, is designed to exhaust laterally across the work surface, giving essentially a horizontal air flow. To provide horizontal flow, air is drawn around and over a distributing or baffle plate. The formula used for determining Q is:



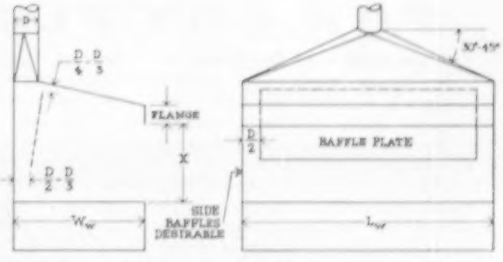

**Lateral Exhaust (Slant Type)**




**Lateral Exhaust (Rear or Side Draft)**




**Lateral Exhaust (Slot Type)**




**Lateral Exhaust (Enclosing Hood Type)**

$$Q = V_c \times A_o$$

where $V_c$ is the control velocity and $A_o$ is the area of all openings into the hood. The recommended values for $V_c$ vary depending on the number of sides which are enclosed:

With only one open side, $V_c$ = 65 fpm
With two open sides, $V_c$ = 90 fpm
With three open sides, $V_c$ = 100 fpm

*(Continued from page 204)*

**Dallas Statler Lighting (Continued)**

Lighting treatment in the passenger elevators consists of hundreds of clear and colored acrylic buttons inserted on 2-in. centers in the 5-ft-wide perforated stainless steel panels which surface the ceiling and rear wall of the cars. Each car is lighted mainly by six fluorescent tubes over the rows of colorless buttons in the ceiling. The back wall has nine rows of amber-toned buttons which transmit a less intense light and, lower down, amber and red buttons inserted in a random pattern to pick up reflected light.

*Announcing*

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Permanent Vapor Barrier

FOR DRY FLOORS

You are assured of dry floors for your clients when you specify Sisalkraft MOISTOP for under all concrete slabs and as a ground cover for crawl spaces in residential construction.

This is a superior water and moisture-proofing product with *polyethylene* backed to reenforced, impregnated kraft paper. It is permanent in its protection . . . it is unaffected by acids and alkalies, rot and mold.

You will want to specify Sisalkraft MOISTOP for all types of construction — there is nothing finer. Available in rolls up to 8 feet — meets FHA and VA minimum property requirements. AR-8

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**Sisalation** — Reflective insulation and vapor barrier

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American SISALKRAFT Corporation

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## LOW-NICKEL ARCHITECTURAL STAINLESS STEEL ANNOUNCED

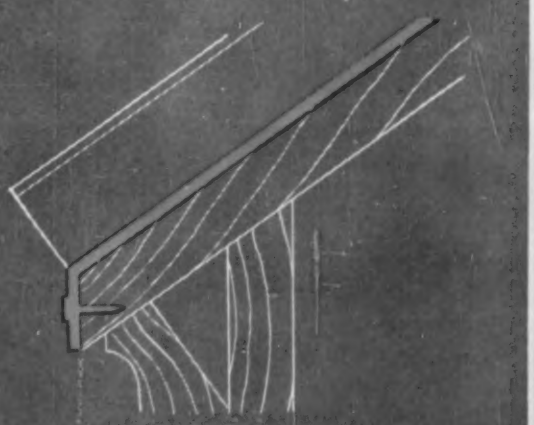
More than twenty years of research on austenitic stainless steels of the low-nickel, high-manganese types has resulted in the announcement by the American Iron and Steel Institute of its new "200 series" of low-nickel, austenitic stainless steels. The new steels are said to compare favorably in all essential characteristics with equivalent types in the higher nickel 300 series, and are expected to help meet the increasing demand for stainless steel for architectural purposes. Chicago's Inland Steel Building (Skidmore, Owings & Merrill, Architects), shown above, will use the new series throughout, and several other buildings still in design stages have tentatively designated these grades.

**Sandwich Panels vs. Columns**

Sandwich panels may soon take the place of columns and other supports in a number of different types of buildings, according to Edward Kuenzi, a scientist at the U. S. Forest Products Laboratory and chairman of the ASTM Committee on Structural Sandwich Panel Constructions. Speaking at a two-day conference on the design and use of sandwich panels sponsored by The Bettinger Corp. of Waltham, Mass., Mr. Kuenzi stated that sandwich panels are bound to become more and more important in building because of the increasing need for cutting building costs while still maintaining high standards. *(More Roundup on page 216)*

# HOW WOULD YOU DO IT?

. . . this way?



EDGE STRIP DETAIL
BATTEN SEAM ROOF
Fig 1

. . . or this way?

EDGE STRIP DETAIL
BATTEN SEAM ROOF
Fig 2

In the Fig. 1 detail the roofing pans are turned down over the cornice edge and secured by copper nails spaced about 3 inches on center.

In Fig. 2, along the cornice edge, a continuous edge strip made from 8'-0" long pieces, such as shown, is attached to the roof boarding before the roofing pans are placed. The lower edge of the roofing pans hook over this previously placed edge strip.

In Fig. 1 the exposed nails will work loose and draw out so they can be removed by the fingers. By nailing the sheets, expansion and contraction movement is restricted which cause waves and buckles to form in the roofing sheets.

In Fig. 2, where the roofing pans are hooked over the edge strip, freedom of movement is provided for the necessary contraction and expansion of the metal. This also keeps the copper nails from being exposed, for a neater installation. A proper drip edge is also provided and the cornice edge of the roof can be finished in a workmanlike manner. Note that the edge strip should extend under the copper roofing pans at least 4" and the ends of each 8'-0" length butt together.

We do not wish to presume to tell you how to design your structures or dictate their construction. For there are many satisfactory methods of installing gutters, leaders, roofs, flashing, coping covers, etc., which, of necessity, change with the design and type of construction and materials used. The purpose of this advertisement is to point out the methods of installation that have been proved by many years of use, and backed by more than a century and a half of experience in working with copper, to be the most satisfactory techniques. You will find these methods in Revere's 110 page brochure, "COPPER AND COMMON SENSE." Send for a copy today. And remember: Revere has a staff of specialists known as Technical Advisors, whose experience qualifies them to render valuable service and advice regarding the use of metals in the building field. Feel free to consult with them at all times regarding the use of Revere Copper; you incur no obligation. Revere Technical Advisors may be contacted through the Revere Office nearest you.

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*Sales Offices in Principal Cities, Distributors Everywhere.*

## DIMENSIONAL STANDARDS FOR ROUGH WINDOW OPENINGS

Dimensional standardization of rough window openings is possible, according to a recent study conducted by Producers' Council, Inc. of installation details for all types of residential windows in frame, masonry and veneer construction. The study shows that details for a majority of available residential windows conform to a relationship between exterior and interior openings which could be proposed as an industry standard.

According to the Council's findings, when the exterior rough opening is modular and dimensioned in a multiple of 4 in. plus ¾ in., the width of the interior framing material should be the same multiple of 4 in. plus ¾ in. Similarly, the height of the exterior rough opening should be a multiple of 4 in. plus or minus 1 in. at the sill with the head on the modular grid line, while the height of the opening in interior framing materials should be the same multiple of 4 in. plus ¾ in. at the head with the sill placed on the modular grid line. (*See drawings above right.*)

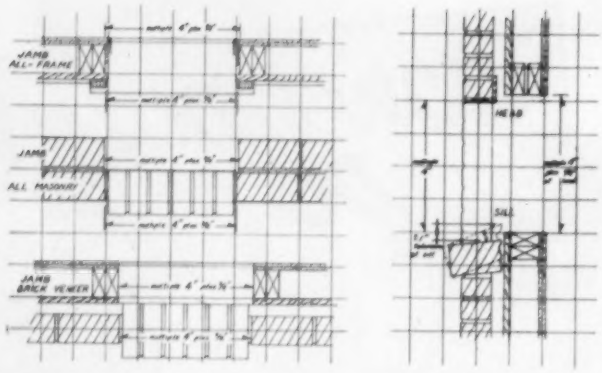
The advantages of this common framing detail relationship, which is now standard for modular windows, could be greatly extended by the adoption of a similar uniform standard for dimensioning windows.

### Architectural Lighting Awards

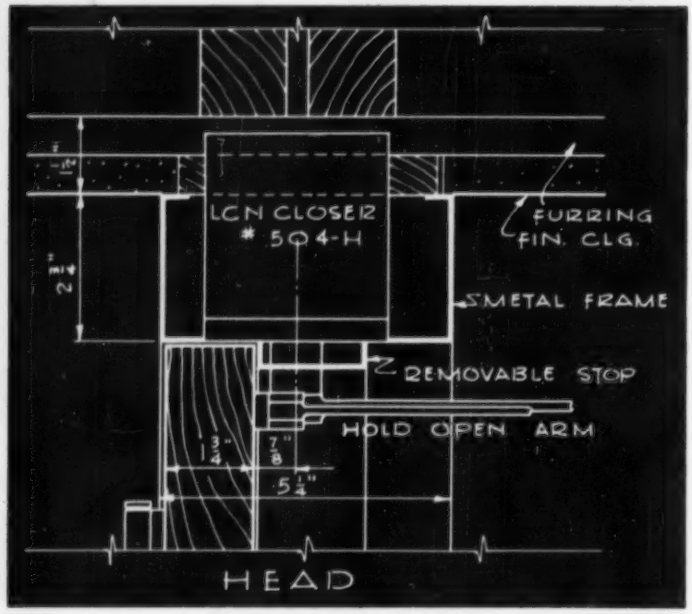
Awards were made at the 50th Anniversary National Technical Conference of the Illuminating Engineering Society in Boston to 14 students for designs which combine good illumination practice with architectural treatment. Part of the Allied Arts Program of the society, this competition serves to focus attention on light as an artistic design medium and on cooperation among young designers in the fields of architecture, industrial design and illuminating engineering.

Winners were Herbert D. Kosovitz, University of California, Berkeley; Delmer Beckhart, USC; John Jensen, Arizona State College; Mark H. Beck and Michael E. Graves, University of Cincinnati; Robert Blackford, Jerome Aidler, John R. Parks, David Simpson of Western Reserve University, Case Institute of Technology, Cleveland In-

*(More Roundup on page 218)*








**CONSTRUCTION DETAILS**

**for LCN Overhead Concealed Door Closer Installation Shown on Opposite Page**

*The LCN Series 500 Closer's Main Points:*

1. Efficient, full rack-and-pinion, two-speed control of the door
2. Mechanism entirely concealed; arm visible on inside of an out-swinging door
3. Hydraulic back-check prevents door's being thrown open violently to damage door, walls, etc.
4. Double lever arm provides maximum power to overcome wind and drafts
5. Arm may be hold-open type, 90° to 140° or 140° to 180°

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**LCN CLOSERS, INC., PRINCETON, ILLINOIS**

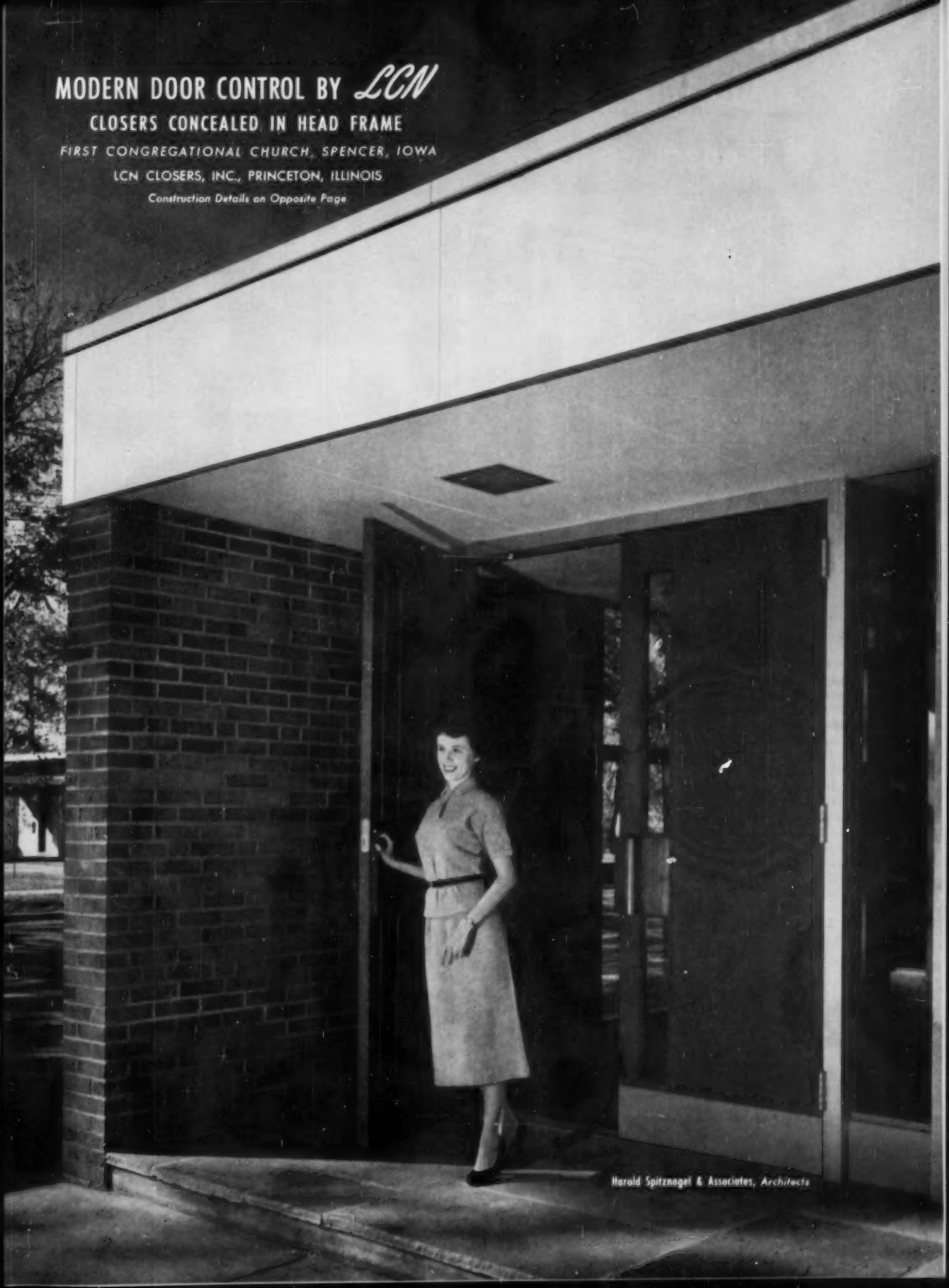
# MODERN DOOR CONTROL BY *LCN*

## CLOSERS CONCEALED IN HEAD FRAME

*FIRST CONGREGATIONAL CHURCH, SPENCER, IOWA*

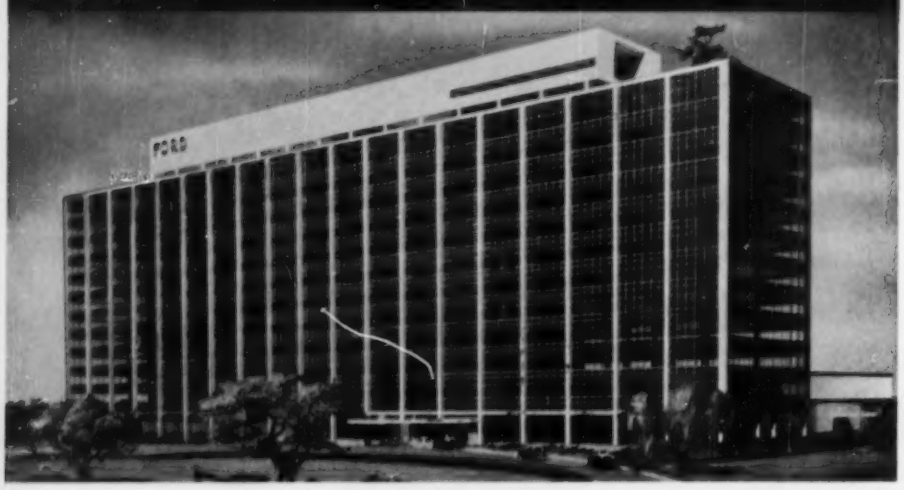
LCN CLOSERS, INC., PRINCETON, ILLINOIS

*Construction Details on Opposite Page*



Harold Spitznagel & Associates, *Architects*

# Q-FLOOR helps make Ford's new office building as modern as its cars




*Ford Motor Company.....Dearborn, Michigan*
*Skidmore, Owings and Merrill.....Architects*
*Bryant & Detwiler Company....General Contractors*
*Weiskopf & Pickworth.....Structural Engineers*

Shown above is the Ford Motor Company's magnificent new administration building which occupies a 90-acre site in Dearborn. It provides nearly 950,000 square feet of floor space, approximately 500,000 square feet of which is Q-Floor and on which 3,000 employees are working in the comfort of the latest in modern lighting and air conditioning.

Architects Skidmore, Owings and Merrill carefully designed the building to prevent obsolescence due to changing conditions in the years to come. Interior partitions are movable to provide maximum flexibility in floor arrangements, and Robertson Q-Floor construction has been used to permit complete freedom of power and telephone outlet changes and additions at minimum cost. Only with this weight-saving, cellular steel structural floor can every exposed 6" square area be the potential location of a convenience outlet.

Robertson Q-Floor construction also saves time and money. Its weight-saving factor means lower cost of foundation and structural steel. It immediately becomes a safe storage and working platform for the benefit of all trades. And because no combustible forms and falsework are required for the concrete fill, there has never been a construction fire on a Q-Floor job.

With all these features, it is easy to see why Q-Floor will help keep this fine new building as modern as the Ford of tomorrow.

**Robertson**

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stitute of Art; Donald Nupp, Ray Eads, Ray Lynn, Charles Dunn of Kent State University, Akron University, Akron Institute of Art; Robert Edward Dorr, University of Maine.

The awards committee included Curtis Foster, AIA; Leslie Ford, AIA, Isidor Richmond, AIA; Willard Thompson, IES; and Richard Kimball, IES. Karl Staley is general chairman of the Allied Arts Committee.

## STAINLESS STEEL SANDWICH PANELS IN OFFICE BUILDING

One of more than 1000 all-steel panels being used in the new general office building of U.S. Steel's Homestead District Works in Munhall, Pa., is shown above being moved into place as the building nears completion. Designed by Hoffman & Crumpton, AIA, of Pittsburgh, the building is faced on three sides with stainless steel and on the fourth side with porcelain-enameled panels. The porcelain panels, 4½ by 12 ft in size, are said to be the largest ever used architecturally.

Each one of the sandwich panels, faced with either stainless steel or porcelain enamel on the exterior, is faced with carbon steel on the inside. The 3-in. thickness between surfaces encloses a fibrous-glass insulation and a dead air space, helping to maintain even temperatures within the building and making the panels completely noncombustible.

Use of these sandwich panels in the five-story, 331-ft-long building is said to have materially reduced the building's load and wall thickness, thus leading to structural savings in reduced foundation costs and increased area per square foot of building space.

*John Severin (right) talks over plans for a new tract with Ray Nicholson of The Pacific Telephone and Telegraph Company.*

# "Our salesmen stress concealed telephone wiring"

***— says Mr. John S. Severin of Severin Construction Company, San Diego, Cal.***

"Concealed telephone wiring has become a competitive sales feature," says Mr. Severin. "More and more home buyers are asking for it. Our salesmen stress concealed wiring when talking to potential customers, and we play it up in our radio, TV and newspaper advertising.

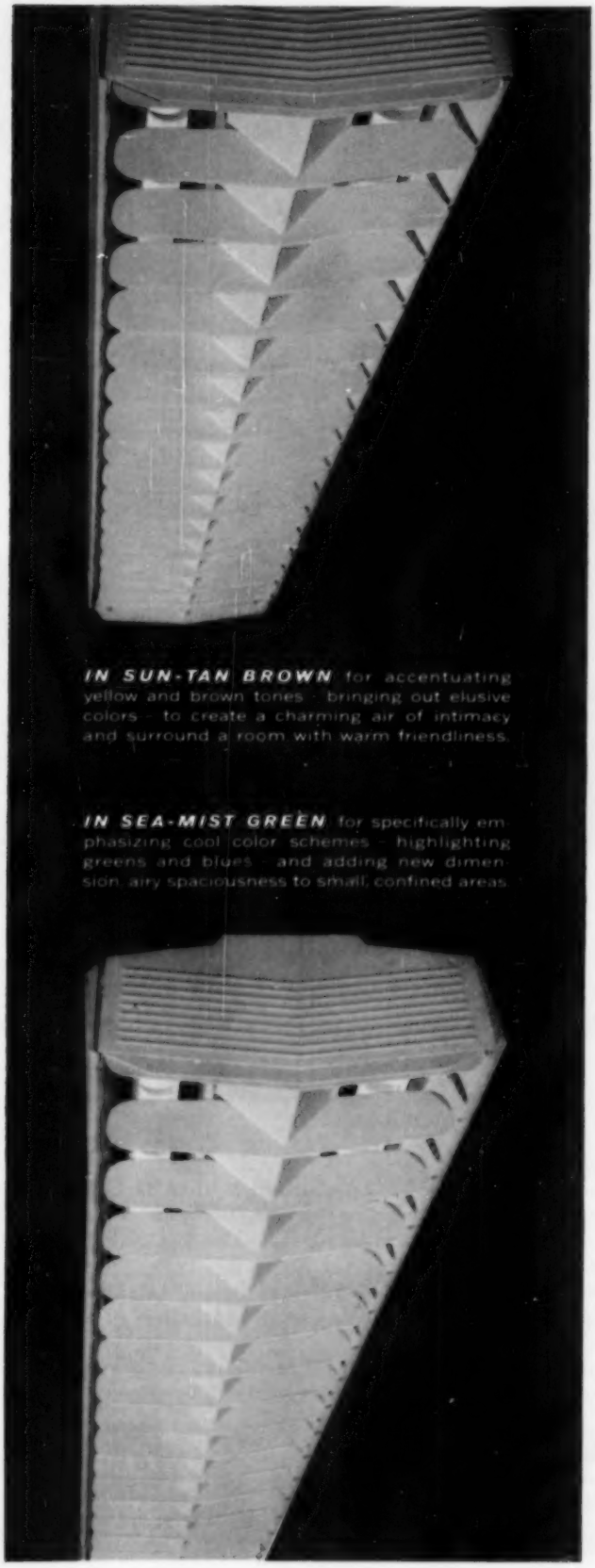
"It's easy to understand why people want concealed telephone wiring. It preserves the inside beauty of a house, and it's in line with the modern trend towards built-in convenience. To me, concealed telephone wiring is one sign of a well planned and constructed house."

In thirty years as builders, Mr. Severin and his brother Nels have built nearly 6000 homes, with hundreds more under construction at the moment. They are members of the N.A.H.B., the B.C.A. and many other professional organizations. In company with trend-minded builders across the country, they are convinced of the value of concealed telephone wiring as a quality sales feature.

• • •

Your nearest Bell Telephone business office will help you with concealed wiring plans. For details on home telephone wiring, see Sweet's Light Construction File, 8i/Be. For commercial installations, Sweet's Architectural File, 32a/Be.

**BELL TELEPHONE SYSTEM**



***IN SUN-TAN BROWN*** for accentuating yellow and brown tones – bringing out elusive colors – to create a charming air of intimacy and surround a room with warm friendliness.

***IN SEA-MIST GREEN*** for specifically emphasizing cool color schemes – highlighting greens and blues – and adding new dimension, airy spaciousness to small, confined areas.

# New Westinghouse carousel luminaires

***A new idea in color lighting to accentuate decor in offices, stores and schools***

Color comes alive with new Westinghouse Carousel luminaires — snaps to attention for you in perking up office morale, sparking merchandise with extra sales excitement and appeal. You get the same animation in classrooms.

Colored metal side panels and all-metal louvers in the new Carousel luminaires diffuse a soft, smooth wash of light which emphasizes specific colors without repelling others.

With new Carousel lighting, colors literally sing in harmony to create exactly the working and seeing atmosphere you desire and need.

Carousel luminaires are comfortable to see by — equally easy to look at. They take the edge off annoying brightness — eliminate glare. And their colorful, smartly styled appearance adds a subtle touch of beauty to any decorating scheme.

Call your local Westinghouse lighting representative for *all* the colorful details on new Carousel lighting. Or, write Westinghouse Electric Corporation, Lighting Division, Edgewater Park, Cleveland, Ohio. J-04407

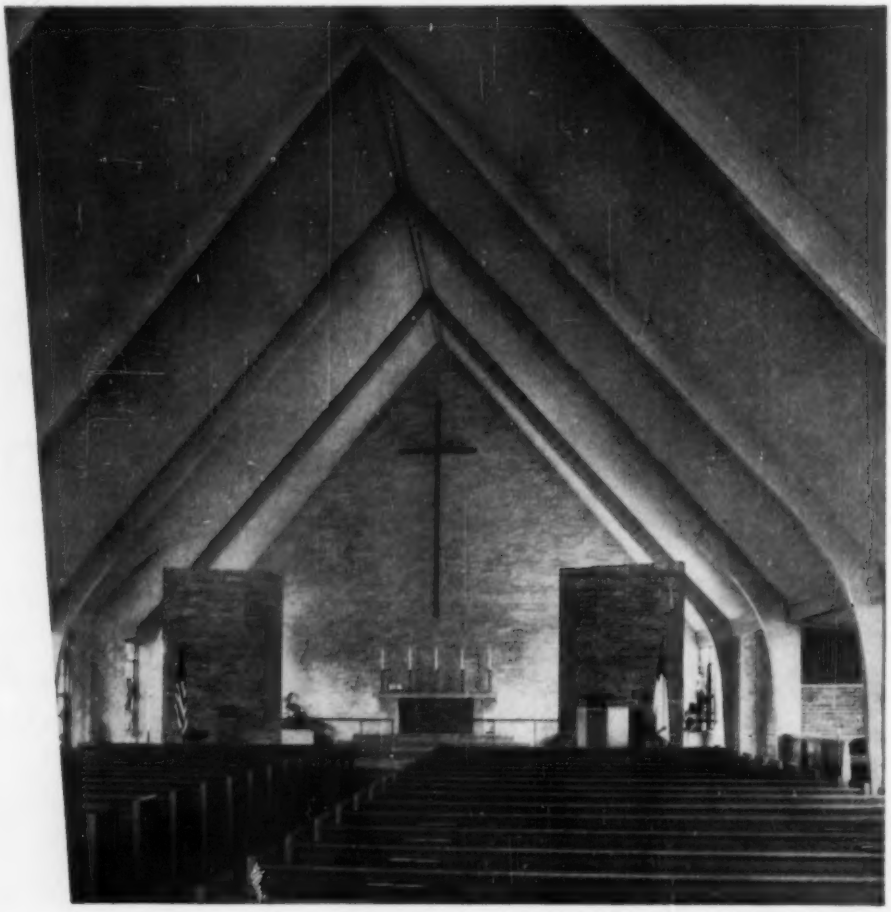
**YOU CAN BE SURE...IF IT'S**

**Westinghouse**

Concordia Lutheran Church, San Antonio, Texas, is 44' x 117'-5" plus wing for sacristy, organ and choir. Construction is concrete slab and beam foundation on fill. Ceiling is sprayed-on acoustical plaster; heating is by warm air; nave lighting is on rheostat.

***Architect:*** Henry Steinbomer, San Antonio, Texas

***Contractors:*** F. L. Scott & Son, San Antonio, Texas



## *Theorem:* Glulam Arches by Timber Structures, Inc. = atmosphere for worship + economical construction

### *Given:*

Desire for church of distinctive appearance; to seat 300 people; moderate budget.

### *To Find:*

Framing which combines structural and decorative functions to achieve maximum beauty and economy.

### *Proof:*

Imaginative design using high rise glulam arches, handmade Mexican brick and unusual window treatment resulted in this building of striking but simple beauty. In recognition of its excellence, the Church Architectural Guild of America awarded it second prize for small churches.

Glulam arches are 44 feet in span, spaced at 16 feet to support the sharply pitched roof. Left exposed, they add a feeling of warmth and stability to the pleasant interior.

The cost figures for the church are equally attractive. Total cost for 5,435 square feet was $72,000, or only $13.24 per square foot.

**ILLUSTRATED BROCHURE,**
"Churches of Beauty and Economy" is yours for the asking. See your nearest Timber Structures representative, or write us directly.

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RICHMOND • BEVERLY HILLS
SACRAMENTO

another VICRTEX VEF ORIGINAL

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Walls seem to come alive . . . reflect brilliant nuances of light . . . mystify the eye . . . delight the senses! It's another versatile, texturally exciting vinyl wall and furniture covering triumph . . .

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MILLS: WHARTON, NEW JERSEY

*Vinyl Electronically Fused

# PARALLEL·O·PLATE®
## provides clear, undistorted vision

General offices of Arcadia Metal Products, Fullerton, California. Note the complete freedom from distortion even at this extreme angle. Architects: Jones & Emmons, Los Angeles.

The use of sliding glass doors in an office building was unheard of a few years ago. Yet see how bright and airy they make these working quarters!

Because doors require large lights of glass, it is important that they be polished *plate* glass. And the finest, most distortion-free plate glass made in America is *Parallel-O-Plate. Twin-ground* for more perfect parallelism, it is manufactured only by Libbey·Owens·Ford. It is available at no higher cost than ordinary plate glass.

Your clients will appreciate the trueness of vision provided by *Parallel-O-Plate* in windows, too. They will be glad you specified the best.

If you'd like a few more specifics, read the column at the right.

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**PARALLEL-O-PLATE GLASS**
*Finest plate glass made in America...*
*only by* **LIBBEY·OWENS·FORD** *a Great Name in Glass*

PARALLEL·O·PLATE

# FACTS

**COMPARE** the reflections of the upside-down signs in the mirror of conventional plate glass (top) and the mirror of *Parallel-O-Plate* (bottom).

*Parallel-O-Plate* Glass is more distortion-free than ordinary plate glass because its surfaces are more parallel.

This great degree of parallelism is the result of a special kind of grinding called *twin-grinding*.

The ordinary method is to cut off a section of glass, grind one side, turn it over and grind the other side.

In the *twin-grinding* process, the glass moves from the furnace through the new annealing lehr and into the *twin-grinding* process where both sides are ground simultaneously in a continuous ribbon 975 feet long. It's precision made all the way.

For further information, call your Libbey·Owens·Ford Distributor or Dealer (listed under "Glass" in the yellow pages). Or write Dept. 75126, Libbey·Owens·Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.

LIBBEY
OWENS
FORD


## PRODUCT REPORTS

*(Continued from page 205)*

### Double-Arc Venetian Blinds

*Eastern's Star* venetian blinds, said to permit maximum control over light and air, have interlocking, "double-arc" slats which block out light completely when closed. The double arc in the slats not only permits complete closure but also provides greater strength, so that fewer tapes are needed for support. The slats themselves are wider, providing a much greater open area than conventional blinds. The blinds come in a variety of colors, with matching tapes of vinyl plastic. They are available in vertical as well as horizontal blinds. *Eastern Machine Products Co., Baltimore, Md.*

### Emergency Lighting Units

*Light Warden Chargomatic* emergency lighting units are self-charging, requiring only the addition of water once every 6 months, thus eliminating the danger of loss of protection through over-charging the battery or letting it run down. The *Chargomatic 88* uses a 6-volt, 105-amp glass jar battery with visible hydrometer balls and furnishes 12 hr of continuous emergency lighting. A new Model 200, featuring a nickel cadmium battery, requires the addition of water only once a year. *Electric Cord Co., 195-A William St., New York 7, N. Y.* *(More Products on page 228)*

FIRE!

Lunch time. Miss Barnes sees smoke in the West Wing! She lifts the Bogen Fire-Alarm handset from the wall-box. In the crowded dining hall pupils hear, "Students, please go out into the playground through the East Wing." Children and teachers march out while Miss Barnes notifies the fire department. This is the modern way to handle an emergency . . . with your Sound System by Bogen, world's largest exclusive sound system manufacturer. Write Dept. KX, David Bogen Co., Inc., P.O. Box 500, Paramus, New Jersey.

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**SCHOOL SOUND SYSTEM**

A UNITRONICS CORPORATION AFFILIATE

(Architects: See Sweets 32 a—Bo)

## FIRE RESISTANCE

Permalite plaster*, used to fireproof structural steel members, gains 4-hour fire-ratings in

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*Dallas, Texas*

**STATE OFFICE BUILDING**
*Pittsburgh, Penna.*

*(and many other noted buildings)*

*Nationwide—noted buildings gain many advantages with*

# Permalite®

*the world's largest selling Perlite aggregate*

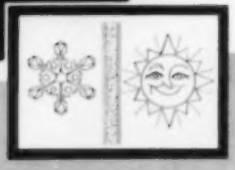
*for* **BETTER PLASTER BETTER CONCRETE**

## LIGHT WEIGHT

Permalite plaster*, only ⅓ the weight of sanded plaster, provided excellent workability, low moisture absorption and low suction ratio in the plastering of many outstanding buildings such as:

**HOTEL FONTAINEBLEAU**
*Miami Beach, Florida*

**NAZARETH CHILD CARE CENTER**
*Boston, Mass.*



## INSULATION

Permalite, used either in insulating concrete or in roof or floor fill, gives highly desirable "K" and "U" factors in all types of buildings, from homes to warehouses.

*examples*

**S. S. KRESGE CO. WAREHOUSE**
(400,000 ft.² roof deck of Permalite lightweight insulating concrete*)
*Fort Wayne, Indiana*

**PERSONAL RESIDENCE OF DESIGNER CLIFF MAY**
(Permalite insulating concrete* fill slab in 7,000 ft.² floor slab)
*Los Angeles, Calif.*

✱ *the terms*

*"Permalite plaster" or "Permalite concrete" mean plaster or concrete in which Permalite expanded perlite is used as the aggregate.

*Write for information on the many advantages of Permalite in modern construction*

**PERLITE DIVISION**
**GREAT LAKES CARBON CORPORATION**
612 So. Flower St., Los Angeles 17, Calif.

# ARCHITECTURAL ALODINE® for aluminum

- **PROTECTIVE**
- **DECORATIVE**
- **GLARE-REDUCING**

Architectural Alodine is protective because it further improves the good weathering characteristics of aluminum. It provides unusually effective protection at the seaside and in industrial areas. Architectural Alodine is decorative because it chemically forms an attractive green color which enhances the appearance of the aluminum. The coating formed is integral with the metal and the color is sunfast. Architectural Alodine is glare-reducing because the chemically formed coating materially reduces the natural reflectivity of aluminum. And the process is inexpensive, compared to other commercial finishes. Write for samples of aluminum which has been Architectural Alodine treated—no obligation.

CHEMICALS ACP PROCESSES

**AMERICAN CHEMICAL PAINT COMPANY**
Ambler 22, Pa.
Detroit, Mich. • St. Joseph, Mo. • Niles, Calif. • Windsor, Ont.

# For Lifetime Wear

## ...and colorful beauty, too!

**Amtico**
PERMALIFE
VINYL FLOORING

All-vinyl . . . with beautiful colors going through-and-through, Amtico Vinyl Flooring is the most complete line and offers unlimited design possibilities . . . takes hardest wear for years.

America's most luxurious flooring, Amtico Rubber Flooring is the quality leader that gives your customers lifetime economy, rich beauty, cushioned comfort and fire-resistance.

**Amtico**
RUBBER FLOORING

Also makers of Amtico Plastex Rubber Flooring

World's Largest Producer of Rubber and Vinyl Floorings

**AMERICAN BILTRITE**
RUBBER COMPANY
TRENTON 2, N. J.

New York Office: 461 Fourth Avenue
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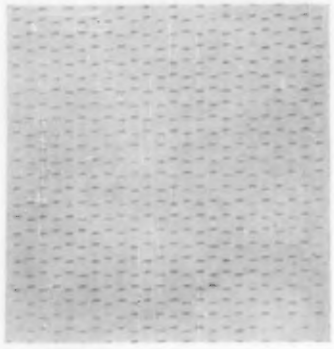
See SWEET'S FILE, Architectural, for specifications and installation data, or mail coupon below:

AMTICO, Dept. AR-7, Trenton 2, N. J.
Gentlemen:
Please send me Free complete set of Samples and detailed information about Amtico Floorings.

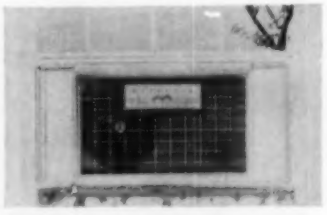
Name.....
Firm.....
Address.....
City..... Zone..... State.....
(Please attach coupon to your business card or letterhead)


## PRODUCT REPORTS



### Aluminum Acoustical Units

The *Hansolex* aluminum acoustical ceiling unit, with sound-absorbing element permanently bonded to the top at the factory, has an embossed pattern of openings that are slanted in depth. The 2-ft-square units, finished in glare-free baked enamel, are simply placed on exposed T-runners. They are said to be low-cost, incombustible, accessible and to have high acoustical value. *Elof Hansson, Inc., Acoustical Div., 711 Third Ave., New York 17, N. Y.*



### Room Air Conditioners

The 1957 Mitchell room air conditioner line, containing 31 models, features the *Roto Cone*, shown above, which has a self-propelled rotor said to enable the unit to cool 21 per cent faster while drastically reducing the sound level. Units are available in ¾, 1, 1½ and 2 hp models, with ¾-hp, 7½-amp and 1-hp, 12-amp units which can operate on 115 volts.

An *Ultra-Thin* unit for flush mounting measures 16⅝ in. in depth and 26¾ in. long by 21 in. high. The *Power Pac 24* is designed for windows just 24 in. wide, and is 24½ in. deep and 14¼ in. high. The powerful *Imperial* is said to be capable of cooling an entire house. Also available are *Pancake*, *Advance* and *Casement* models. All units have models which can be operated on 115-volt household lines. *Mitchell Mfg. Co., 3200 West Peterson Ave., Chicago, Ill.*

*(More Products on page 232)*

# 427 miles of heating dependability

## ASSURED FOR N.Y. STATE THRUWAY!

**FIRST... By Sarcotherm Weather-Compensated Control Systems for all 40 Toll Interchanges**

**AND NOW... By Sarco Heating Specialties for 23 Service Areas**

ON THE NEW YORK STATE THRUWAY, there are now 23 restaurant-gas service areas and 40 toll interchanges along the 427 miles of this great vehicular artery... from New York to Buffalo.

Each of these service areas and toll interchanges has its own heating plant. Therefore, dependability of equipment is of vital importance... for faulty operation or breakdowns would mean heating headaches and call-backs all along 427 miles of highway.

That is one of the principal reasons for the installation of Sarcotherm Weather-Compensated Control Systems for the hot water heating of *all* 40 toll interchanges... and of Sarco Steam Heating Specialties for *all* the 23 service areas now completed.

**For undivided responsibility** on your installations, specify and order from one "Complete Line" source... SARCO-SARCOTHERM... heating specialties, temperature regulators, condensate and vacuum pumps, finned tube radiation, and weather-compensated control systems for steam and hot water heating. Write for catalogs.



**SERVICE AREAS**—Architect: Eggers and Higgins. Consulting Engineers: Jaros, Baum & Bolles. Heating Contractors: Joseph Davis, Inc.; Mechanical Installations, Inc.; Harry Hoyle Contracting Co.



**TOLL INTERCHANGES**—Mechanical Engineers: Syska & Hennessy, Inc. Heating Contractor: Mechanical Installations, Inc.

**SARCOTHERM**

**Sarcotherm Controls, Inc. • Sarco Company, Inc.**
**Empire State Bldg., N. Y. C.**

4009-B

## In America's Leading Buildings, Temperature Control Problems are

# *PRE-SOLVED* by JOHNSON

The new 23-story Denver Club Building* is another impressive example of the exceptional comfort, convenience and economy values of Johnson-engineered Automatic Temperature Control Systems.

The first 16 floors of this modern building are devoted to tenant offices, with each floor providing some 20,000 square feet of rental space. The exclusive Denver Club occupies the upper floors, except for a penthouse apartment.

Mechanical equipment includes a 498-unit Carrier Conduit Weathermaster System, serving the perimeter offices on rental floors, and 20 central fan systems serving the core areas, stores, basement and first floors, club and penthouse areas.

Johnson Control directs all of these systems to produce satisfying, perfectly regulated temperatures throughout the entire building. Operation of all heating, cooling and ventilating equipment is coordinated to limit output to actual needs. Heating and cooling waste is eliminated.

In designing this control system, Johnson engineers *anticipated, and correctly solved,* a wide variety of control problems—problems ranging from the size of the building and the large number of systems to be controlled to the many different exposure, occupancy and usage factors involved. Thanks to this type of expert advance planning, the control system in the Denver Club Building has consistently performed up to expectations—*and from the very beginning!*

Similarly, the specialist Johnson organization can provide an equally successful control system for *any* building. Johnson engineers have pre-solved the temperature regulation problems and installed the automatic control systems for most of the nation's leading buildings, of all types and sizes.

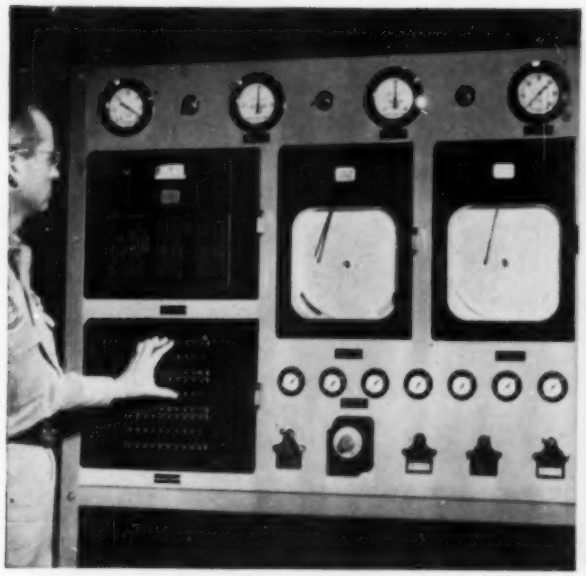
An engineer from a nearby Johnson branch is ready to put this unmatched experience at your disposal. His recommendations are yours without obligation. Johnson Service Company, Milwaukee 1, Wisconsin. Direct Branch Offices in Principal Cities.

*The Denver Club Building, Denver. Raymond Harry Ervin, architect; Marshall and Johnson, mechanical engineers; Denver Plumbing & Heating Co., mechanical contractor; all of Denver.

**JOHNSON CONTROL**

SINCE 1885

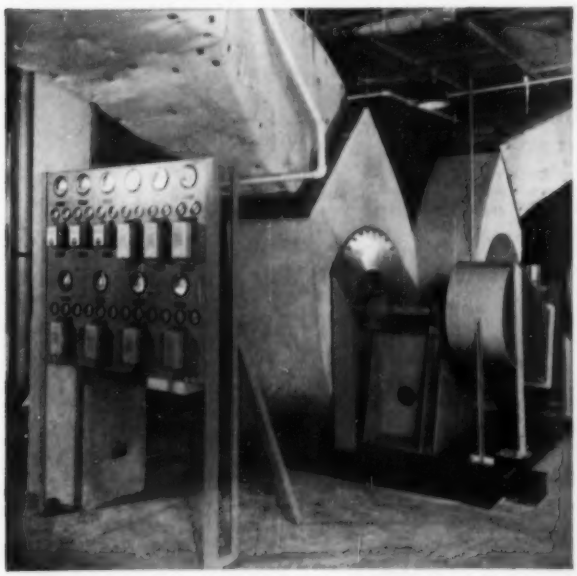
PLANNING • MANUFACTURING • INSTALLING



CONTROL CENTER. From this central control panel a 60-point remote temperature indicator provides an instant check of temperatures at strategic points throughout the systems and in the building. An outdoor temperature recorder, chilled water recorder-controller and summer-winter and heating-cooling changeover switches are also grouped on this panel in the engineer's office.

ROOM CONTROL. Underwindow air conditioning units in perimeter offices are individually controlled by Johnson T-271 Heating-Cooling Thermostats operating V-152 Water Valves on the heating and cooling coils. Tenants enjoy complete comfort as occupants of each office select their own personal "weather." Interior spaces are controlled by strategically located T-400 Room Thermostats.

## New Denver Club Building Gets the Benefits of Ideal Temperatures, Waste-Free Heating and Cooling Operation

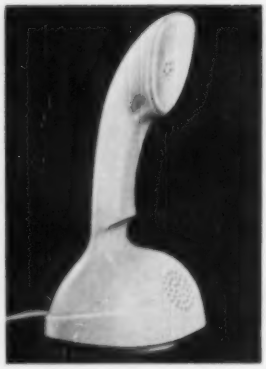


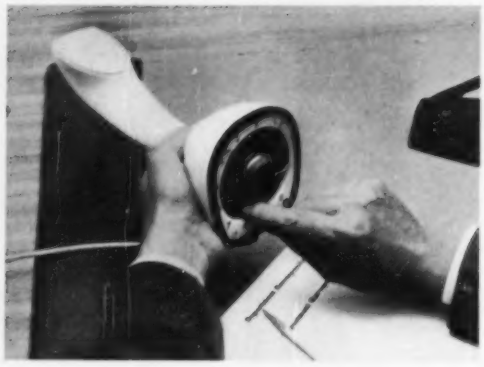
PRE-CONDITIONED AIR. Primary air for room air conditioning units is supplied by central air handling systems. Panel mounted Johnson controllers operate Valves and Damper Operators on the systems to maintain proper temperature and humidity of primary air. Temperatures of the hot and chilled water supplied to room units are kept in balance with outdoor temperatures by other Johnson controllers.

CLUB ROOMS. Year 'round comfort on the three upper floors, occupied by the Denver Club, is provided by sensitive Johnson Thermostats controlling six zones of air conditioning, general ventilation and baseboard radiation systems. During the heating season only the *occupied* rooms need be heated to ideal comfort levels. Rooms not in use may be maintained at low, economy temperatures.

### One-piece Telephone

*The Ericofon* is a one-piece desk or table model dial telephone which is said to occupy half the space of a standard telephone. The dial is located on the underside of the base and so is handy for use when the phone is picked up. A *Standswitch* in the center of the dial performs the line-connecting operation when the phone is lifted. The line is automatically disconnected when the phone is replaced and the *Standswitch* depressed. The receiver is located in the upper part of the case; the transmitter in the lower front part of the base. The lightweight *Ericofon*, with a case of molded thermoplastic, comes in six colors. *North Electric Co., Galion, Ohio.*





We realize that Technical Departments are only one segment of the vast complex which an Architect must integrate into the functional unit required for today's hospital • Yet they are a *vital* segment ... and *changing*. Standards, techniques and equipment are advancing almost from day to day.

*As the world's largest designer and manufacturer of Surgical Sterilizers and related hospital equipment, we at American Sterilizer have pioneered many currently accepted techniques and technical departments. And we are constantly researching others which hold promise.*

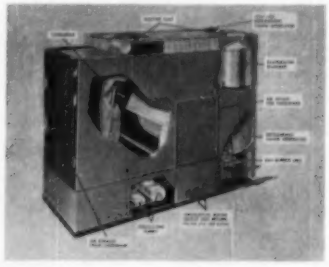
* We have, in short, authoritative and current data of professional interest to every Architect engaged in a hospital project.

Much of that information is summarized in your current Sweet's Architectural File. But more than that, our Technical Sales Division is available for consultation and for the preparation of room plans, specifications and rough-in drawings related to your specific project. As we said, we like to be helpful.

Central Sterile Supply Departments
Solution Rooms
Milk Formula Rooms
Sub-sterilizing Rooms
Central Instrument Rooms
Utility Rooms

*Let us know how we can help You!*

AMSCO
AMERICAN STERILIZER
ERIE • PENNSYLVANIA

### Gas Air Conditioner

Rheem has shown a prototype of a central air conditioning unit for residential heating and cooling which uses gas for operation. Although the unit won't be available for another year, it is being tested in a number of homes. Housed in a cabinet 4 ft long by 2 ft wide by 4 ft high which can be located outside of the house, the unit operates entirely on the basis of a single gas burner. The liquid and vapor system which serves to cool or to heat is completely sealed in the cabinet and is regulated by automatic controls. It can be used for wet heat systems and also for warm air systems, in which the cooled or heated circulating water runs through a heat exchanger coil and blower. *Rheem Mfg. Co., 7600 So. Kedzie Ave., Chicago 29, Ill.*

### Roll Form Rubber Flooring

*Tara-Flor*, terrazzo design rubber flooring, available heretofore in standard tiles, is now available also in roll form. A complete selection of 12 colors in standard 1/8 in. gauge is being produced. *The R.C.A. Rubber Co., Akron, Ohio.*

*(More Products on page 238)*

Engineers: Hixson, Tarter & Associates, Cincinnati
Gen. Contractor: The Baldwin Company, Little Rock

**MEN AT WORK...**
**beating construction time, cutting days off production schedules**

# Thanks TO THESE 7 PLUS BENEFITS Kroger again "goes for" ZONOLITE®

## CONCRETE *Poured-in-Place* OVER CORRUGATED METAL

*—the low cost...firesafe...lightweight*
**INSULATING ROOF DECK SYSTEM**

Now in Little Rock, as in other locations, The Kroger Co. employed Zonolite vermiculite concrete for its mammoth new Distribution Center.

Poured over corrugated metal, this system went on faster, is firesafe and delivers high insulating value... yet is low in cost. Engineers credit Zonolite concrete-corrugated metal with savings of $5,000 on this job alone, compared to the alternate specified!

View shows type of joist used in Kroger's Little Rock Distribution Center. Corrugated metal being placed over steel frame.

Welding metal deck in place. Placing Zonolite vermiculite concrete.

**Here are some of the benefits you can expect to derive from this**
**NEW-TYPE ECONOMICAL, BETTER PERFORMING ROOF SYSTEM**

**1. SPEEDY ERECTION**—Skilled applicators apply Zonolite faster, cutting days off production schedule.

**2. FIRESAFETY**—Zonolite systems fire-tested by leading laboratories earn consistently high ratings.

**3. LIGHTWEIGHT**—Approximately 7½ lbs. per sq. ft.—eliminating many tons of dead-weight.

**4. FLEXIBILITY**—Zonolite is adaptable to any roof design—over corrugated steel, formboards, metal lath, paper-cabked wire lath, metal deck.

**5. MONOLITHIC**—Poured monolithically, Zonolite leaves no voids, cracks, apertures; protects against "tardrip" should fire originate in under-areas.

**6. INSULATING**—Zonolite concrete provides astonishing insulation value, so important in present-day roof construction.

**7. COST-SAVING**—Zonolite concrete application saves time, labor, money!

**MAIL COUPON FOR COMPLETE FILE DATA AND INFORMATION—*No Obligation***

**FREE BOOK**

## *Mail Coupon Today!*

**Here is a book you'll want to have for quick reference ...gives details of many roof deck systems...including design data, section drawings, ratings, etc.**

## ZONOLITE COMPANY
135 S. LaSalle Street, Chicago 3, Ill.

**ZONOLITE COMPANY, Dept. AR-126**
**135 S. LaSalle Street, Chicago 3, Ill.**

Please send me your new booklet, G-101, "Systems of Lightweight Construction"

*Name*.....

*Firm Name*.....

*Address*.....

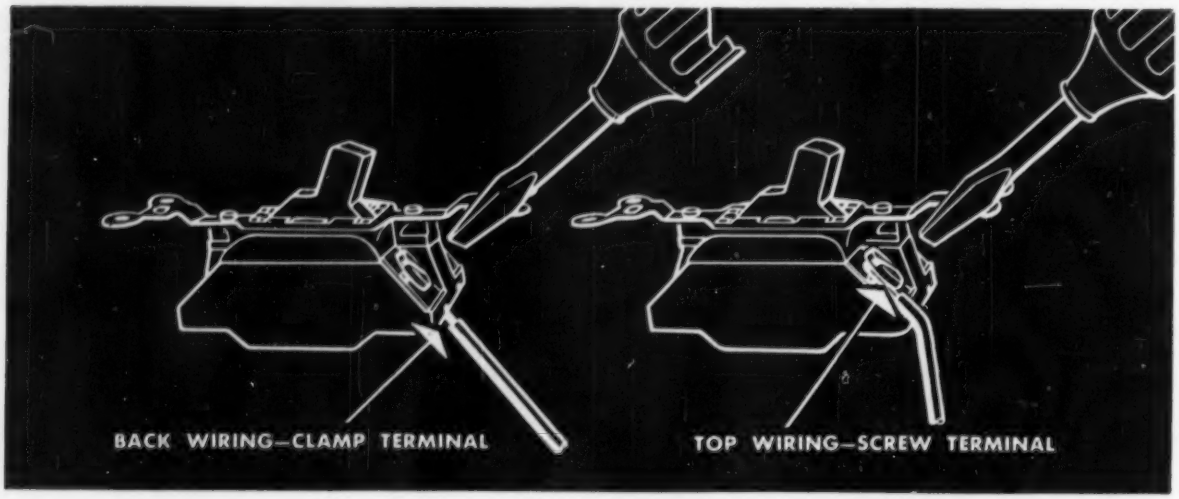
*City*.....*Zone*.....*State*.....

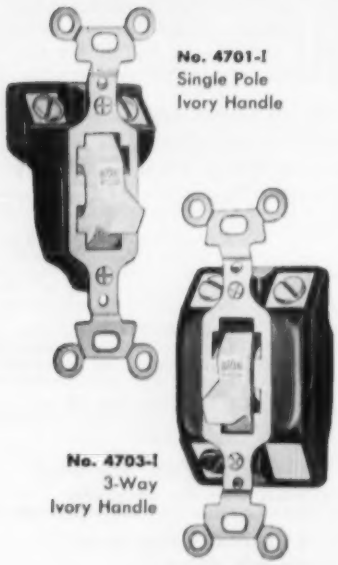
☐ ARCHITECT ☐ BUILDER OTHER.....

# NEW DESIGN

## BRYANT SILENT MERCURY SWITCHES

Higher Rating • Optional Wiring • Easier to Install



**No. 4701-I**
Single Pole
Ivory Handle

**No. 4703-I**
3-Way
Ivory Handle

### Control Tungsten Filament or Fluorescent Lamp Loads at Full Rated Capacity

**HIGHER RATING** – 15 Ampere 120 Volt A.C. Rating makes this switch particularly desirable for the control of tungsten filament and fluorescent lamp loads without derating. A.C.-D.C. Rating – 10 A. T. 125 V. – 5 A. 250 V.

**OPTIONAL WIRING** – Either screw terminal top wiring or clamp terminal back wiring.

**EASIER TO INSTALL** – Unique design permits rapid connections – whether top or back wired.

**APPLICATIONS** – Especially suited for hospital, residential and other installations where completely silent operation is desired.

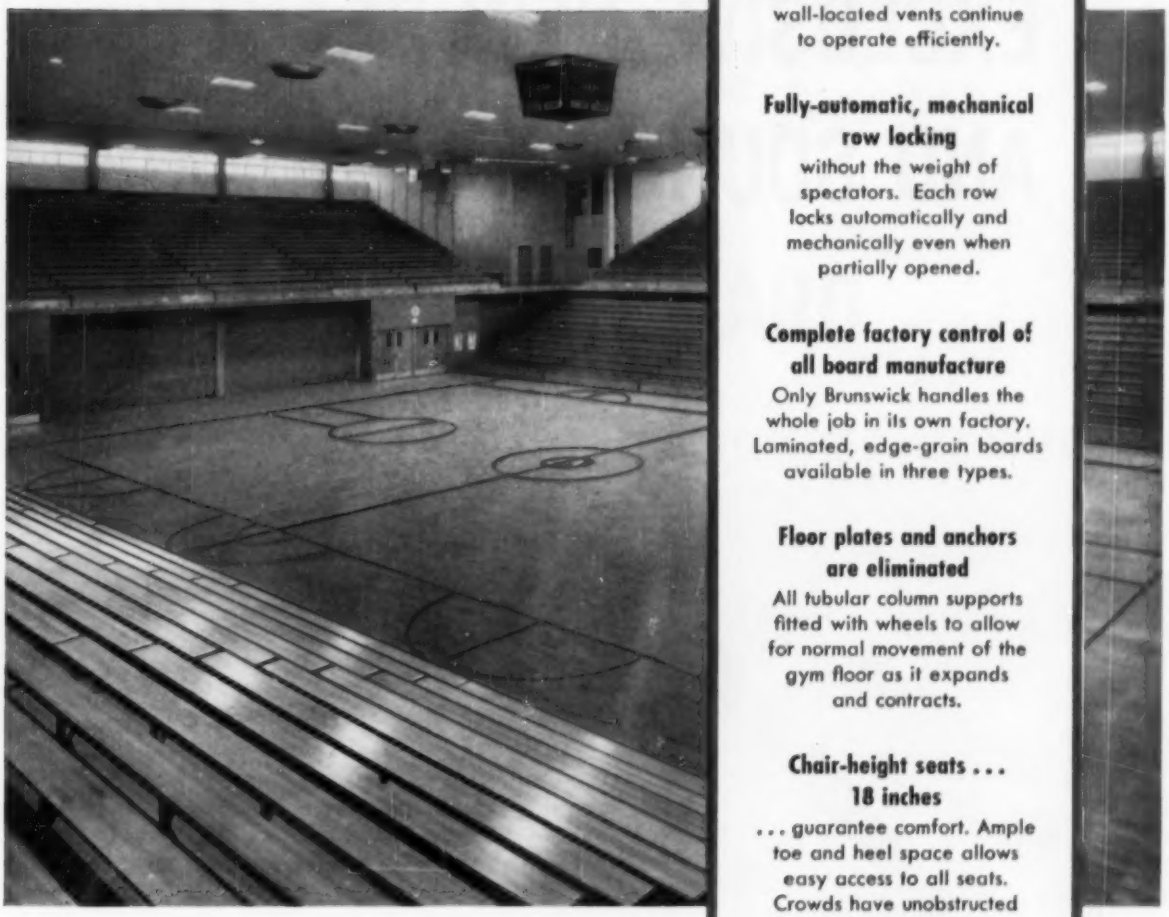
**AVAILABLE** – In single or double pole, 3 and 4 way types with brown or ivory handles.

Listed by Underwriters' Laboratories, Inc.
J-99970

BRYANT
SUPERIOR WIRING DEVICES

**THE BRYANT ELECTRIC COMPANY**
**Bridgeport 2, Connecticut** • CHICAGO • LOS ANGELES

# Have you seen Brunswick Folding Gym Seating?



## Check the exclusive features at an installation near you!

If you haven't actually seen Brunswick Folding Gym Seating installed and in operation, you owe it to yourself and to your school to do so before you plan any farther. See for yourself Brunswick's exclusive features that mean added comfort, convenience, economy and safety. Your Brunswick representative will be happy to arrange a visit to an installation near you. Call him today!

See SWEET'S 22J/Ho

THE BRUNSWICK-BALKE-COLLENDER COMPANY
Horn Division • Marion, Virginia

**Rail type boards eliminate costly ventilating problems**
Air circulates freely between the rails so that wall-located vents continue to operate efficiently.

**Fully-automatic, mechanical row locking**
without the weight of spectators. Each row locks automatically and mechanically even when partially opened.

**Complete factory control of all board manufacture**
Only Brunswick handles the whole job in its own factory. Laminated, edge-grain boards available in three types.

**Floor plates and anchors are eliminated**
All tubular column supports fitted with wheels to allow for normal movement of the gym floor as it expands and contracts.

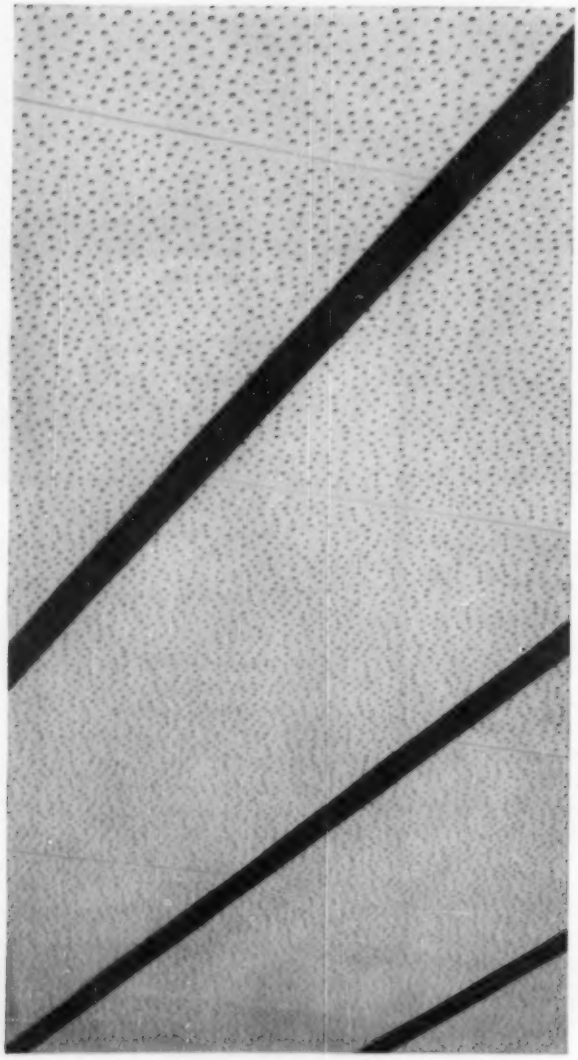
**Chair-height seats . . . 18 inches**
. . . guarantee comfort. Ample toe and heel space allows easy access to all seats. Crowds have unobstructed view of playing floor at all times.

**Maintenance costs hit a new low**
Foot boards tilt to drop litter to the floor. Tubular column supports extend and fold in the same plane so that litter is not carried back and under the unit. Sweeping out is an easy job.

Brunswick

## for poured roof deck construction

# EXCLUSIVE NEW BEAUTY AND SOUND CONDITIONING... WITH ARMSTRONG



**FULL RANDOM DESIGN ADDS NEW CEILING BEAUTY** – You can bring contemporary styling and the advantages of noise quieting to the underside of poured-in-place roof decks with new Armstrong Acoustical Formboard. The "ceiling side" of this modern material is perforated in exclusive full random. This decorative design, first introduced in Armstrong Cushiontone® ceilings, has gained enthusiastic acceptance all over the country. Now in Armstrong Formboard, it allows architects to make an attractive ceiling a standard part of every lightweight roof on schools, offices, and other buildings where beauty and sound conditioning are design considerations. Armstrong Formboard is made from two layers of wood fiberboard, each ½" thick and laminated to form a full 1" thick board 24" x 48" in size. The top layer is asphalt-impregnated Temlok, used because it resists moisture, yet has high permeability to water vapor. The layer exposed to the building interior is Armstrong Cushiontone acoustical material.

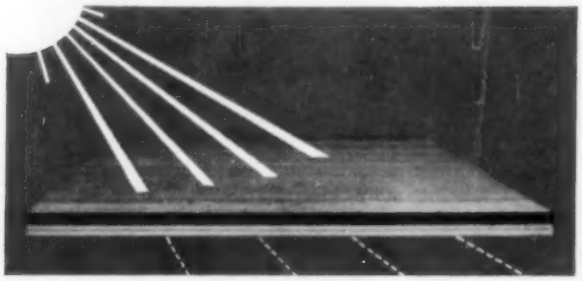
**ABSORBS OVER ½ THE NOISE THAT HITS IT** – The full random design provides highly efficient noise traps as well as ceiling beauty. The cleanly drilled perforations, ¼" and 3/16" in diameter, give Armstrong Acoustical Formboard a noise-reduction coefficient of .55.

**SOUND-ABSORPTION COEFFICIENTS OF ARMSTRONG ACOUSTICAL FORMBOARD**

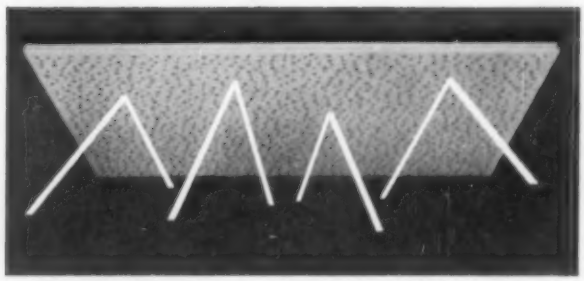
| Mounting | 125 | 250 | 500 | 1000 | 2000 | 4000 | NRC |
|---|---|---|---|---|---|---|---|
| On 2 x 4's on edge, 32" o.c. | .16 | .38 | .50 | .63 | .64 | .59 | .55 |

# ACOUSTICAL FORMBOARD

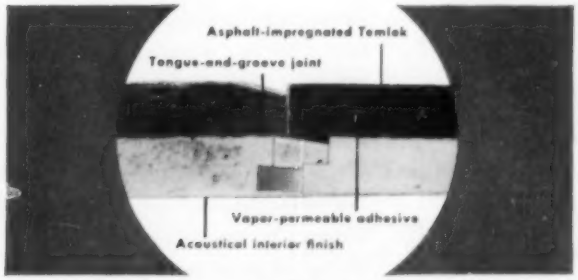
(plus all these extra advantages)



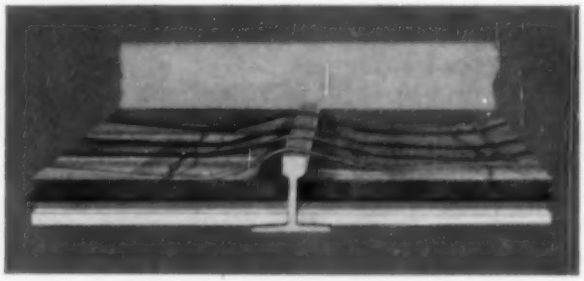
**HIGH INSULATION VALUE** – The light-density fiberboard composition of the new Armstrong Formboard provides excellent insulation in addition to noise quieting. The material has a certified "C" value of 0.36 Btu at 75° mean temperature.



**REFLECTS 78% OF LIGHT** – The factory-finished white surface brightens building interiors. It's easily maintained, can be repainted, if desired, after roof slab and formboard have thoroughly dried, without loss of noise-absorbing efficiency.




**VAPOR PERMEABLE COMPOSITION** – The asphalt-impregnated Temlok board and the laminating adhesive allow free escape of moisture so that the roof slab cures properly. Adhesive is specially formulated to retain its strength when wet.



**NO SPLINES OR CROSS TEES** – Extra strong T&G joint will adequately support entire weight of the poured roof deck. Splines and cross tees are not needed. Narrow bevels give interior acoustical ceiling neat look, unbroken by cross markings.

**For free booklet** that gives the complete story of Armstrong Acoustical Formboard, see your nearest Armstrong office or write Armstrong Cork Company, 3812 Rock St., Lancaster, Pennsylvania.

Armstrong

ROOF INSULATIONS

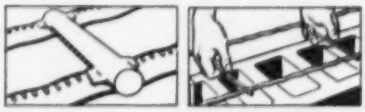
TEMLOK® ASPHALT-IMPREGNATED TEMLOK
ACOUSTICAL FORMBOARD CORKBOARD

For STRONGER WALLS

USE WAL-LOK IT BONDS BETTER

Mortar Joint Reinforcing

THE WAL-LOK WAY



When a mason uses reinforcing in a masonry wall, he lays the reinforcing right on the last course. With WAL-LOK, Cross Rods are welded across the Side Bars. The mason puts WAL-LOK on the wall with the Cross Rods DOWN.

The Cross Rods hold the Side Bars up away from the blocks and the mortar completely surrounds each Side Bar. With WAL-LOK, the mortar grips all the way around!

All WAL-LOK is also deformed and knurled for a positive bond the full length. All this still permits a quarter inch mortar joint.

THE WRONG WAY

With ordinary reinforcing, where all the wires are butt-welded in one plane, the Side Bars rest right on the blocks. The mason puts on his mortar. Steel doesn't float, so the mortar can't get under the Side Bars and the mortar bonds only to the top and sides.

WHY EXPECT MORTAR TO DO SOMETHING YOU CAN'T DO?

When you try to hang onto a rod, you don't hold it with your finger tips. You grip it in your fist with your fingers wrapped all the way around.

Why gamble—on cracked walls or wall failures. WAL-LOK costs so little yet adds so much to the strength and value of the structure.

**WRITE TODAY for your copy of WAL-LOK's new folder showing sizes, specifications and test results.**

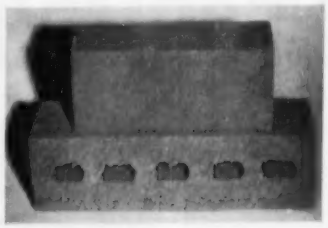
WAL-LOK

ADRIAN PEERLESS, INC.
1408 E. Michigan St.
Adrian, Michigan


## PRODUCT REPORTS

### Residential Evaporators

A new line of residential evaporators for use with hot air systems in the duct-work of home furnaces has capacities from 24,000 to 60,000 Btu per hr. A *Turbo-Flo* fin is said to increase air turbulence to provide an added safety factor measure of heat transfer. Cabinets are made of steel with a twin coat vinyl protection to prevent rust. The evaporators are insulated with fiberglass throughout. *Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa.*



### King-sized Brick

A brick that measures 11¾ in. long by 2¾ in. high, king-sized compared with a standard brick of 8 in. by 2¼ in., is being used as a facing material in a new shopping center on Long Island. Advantages claimed for *Kingston* brick by the manufacturer are emphasis of building length, economy of placement and low maintenance costs because of fewer joints. *Belden-Stark Brick Corp., 15 East 26th St., New York, N. Y.*

### Diffuser Mounting Ring

The *Titus PMR* is a plaster mounting ring for flush-mounting Titus ceiling diffusers in all types of ceilings. Said to cut mounting costs up to 80 per cent and to prevent the diffuser from ever sagging away from the ceiling, the PMR serves as a combination ceiling diffuser ring and plaster ground. It installs, as shown above, by slipping the neck of the ring over the circular lead-off from the main duct and securing it to the lathing channels with two screws. *Titus Mfg. Corp., Waterloo, Iowa.*

*(More Products on page 242)*


Quality IS A TRADITION

DETROIT

TRIM HARDWARE

**Detroit Trim Hardware, in solid brass, bronze, aluminum or stainless steel, is beautifully designed and finished with a richness that immediately reflects high quality materials and manufacturing skill. This accounts for the unmistakable feeling of good taste that is always associated with Detroit Hardware products.**

*Detroit Hardware Mfg. Company*

1320 Mt. Elliott Street
Detroit 7, Michigan

## "Who said light upholstery colors aren't practical?"

If that's your idea, you are limiting the decorative aspects of your planning. Actually, you are thinking of ordinary upholstery materials—and *this* is a far cry from that. It's easy to clean Masland Duran vinyl plastic with the luxury look of woven fabric. Even delicate pastels wipe clean—making it practical for you to suggest light, gay colors on all types of home and institutional furniture. Let's give you an idea of the decorative scope of Textured Masland Duran. Write for samples to The Masland Duraleather Company, Dept. C36, Philadelphia 34, Pa.

**ELASTIC FABRIC BACK...TEXTURED**

# Masland Duran®

**VINYL PLASTIC UPHOLSTERY**

SINCE
**POMEROY**
1897

the new monumental type 360°

**REVERSIBLE**

aluminum window

S. H. POMEROY CO., INC., 25 BRUCKNER BOULEVARD, NEW YORK 54, N. Y.

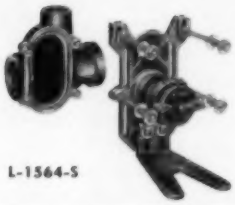
*manufacturers of*

DOUBLE-HUNG WINDOWS | VERTICALLY PIVOTED WINDOWS | CUSTOM-BUILT ENCLOSURES | SPANDRELS SYSTEMS | ACOUSTICAL CEILING SUSPENSION SYSTEMS | METAL PARTITION STUDS

FABRICATION IN ALUMINUM — STAINLESS STEEL and COATED STEEL

# BLAKE

## COMBINATION ADJUSTABLE "TY" FITTINGS AND CARRIERS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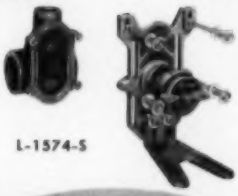
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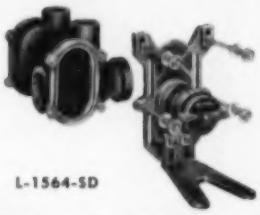
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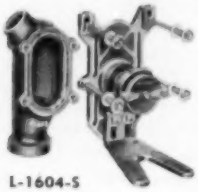
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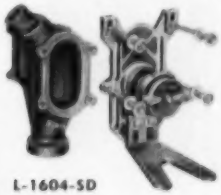
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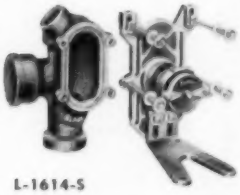
Adjustable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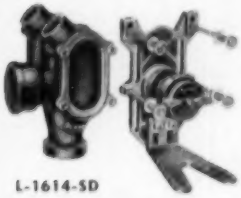
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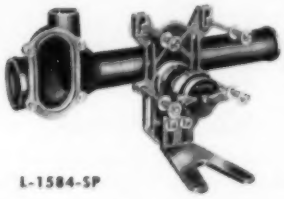
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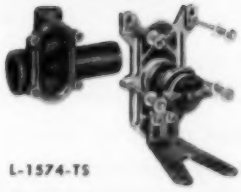
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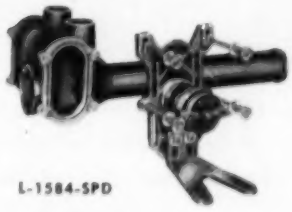
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## KEEP THE FIXTURES OFF THE FLOOR!

**Blake Carriers for Wall Type Fixtures Include:**

- ✓ CLOSETS
- ✓ LAVATORIES
- ✓ URINALS
- ✓ SINKS
- ✓ HOSPITAL LAVATORIES
- ✓ HOSPITAL SINKS
- ✓ STERILIZERS

LAVATORY CARRIER

URINAL CARRIER

Blake engineered design "TY" fittings and carriers support wall type closets independent of the wall, providing sanitary and easily maintained rest rooms. A compact, efficient assembly of component parts requiring a minimum of space, Blake "TY" fittings conserve valuable building area and insure proper waste line pitch.

**• Horizontal or vertical installations • Single or double applications • Screw pipe or soil pipe • Syphon-jet or blow-out closets • Single installations or for batteries**

For complete information on all Blake combination adjustable "TY" fittings and carriers, mail coupon.

50 YEARS 1956

**Blake Division**
**HOFFMAN SPECIALTY MFG. CORP.**
1700 WEST 10th STREET, INDIANAPOLIS 7, INDIANA

**HOFFMAN SPECIALTY MFG. CORP., 1700 W. 10th St.**
**Dept. AR-12, Indianapolis 7, Indiana**

Please send me catalog No. 22 on Combination "TY" Fittings and Carriers.

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Firm _____

Address _____

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SECTION OF LOBBY, GREATER PITTSBURGH AIRPORT • ARCHITECT: JOSEPH HOOVER, PITTSBURGH, PA. • PHOTO BY LEONARD SCHUGAR FROM GAMMA

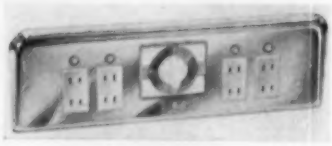

# Wings for your imagination with Terrazzo under foot

TERRAZZO allows your imagination free play, permits you to accomplish enduringly beautiful installations without creative restrictions. Terrazzo is timeless, the perfect vehicle for contemporary settings, aesthetically appropriate to classic design, rewarding for the architect whose ideas it faithfully reproduces.

From the point of view of the man who pays for it, Terrazzo is equally satisfying: Richly, permanently beautiful, inexpensive to maintain, easy to keep clean, capable of absorbing the toughest kind of wear for years without end. For detailed information, write the Association in Washington, D. C. Free AIA Kit upon request. Catalogued in Sweet's.

THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION
404 Sheraton Building, 711 14th St., N. W., Washington 5, D. C.


## PRODUCT REPORTS



### Appliance Panel

An appliance panel for kitchen "appliance centers" has eight receptacles to handle rotisseries, irons, hair-dryers, frypans, clocks, radios and other appliances at the same time. Each set of two outlets, accommodating up to 2200 watts, has an individual circuit breaker with a reset button to restore current. A timer is in the center of the panel. All wiring is complete within the panel, with only two simple connections required to the lead-in wires. The panel comes in chrome or copper finish. *Du-Wal Inc., River Grove, Ill.*

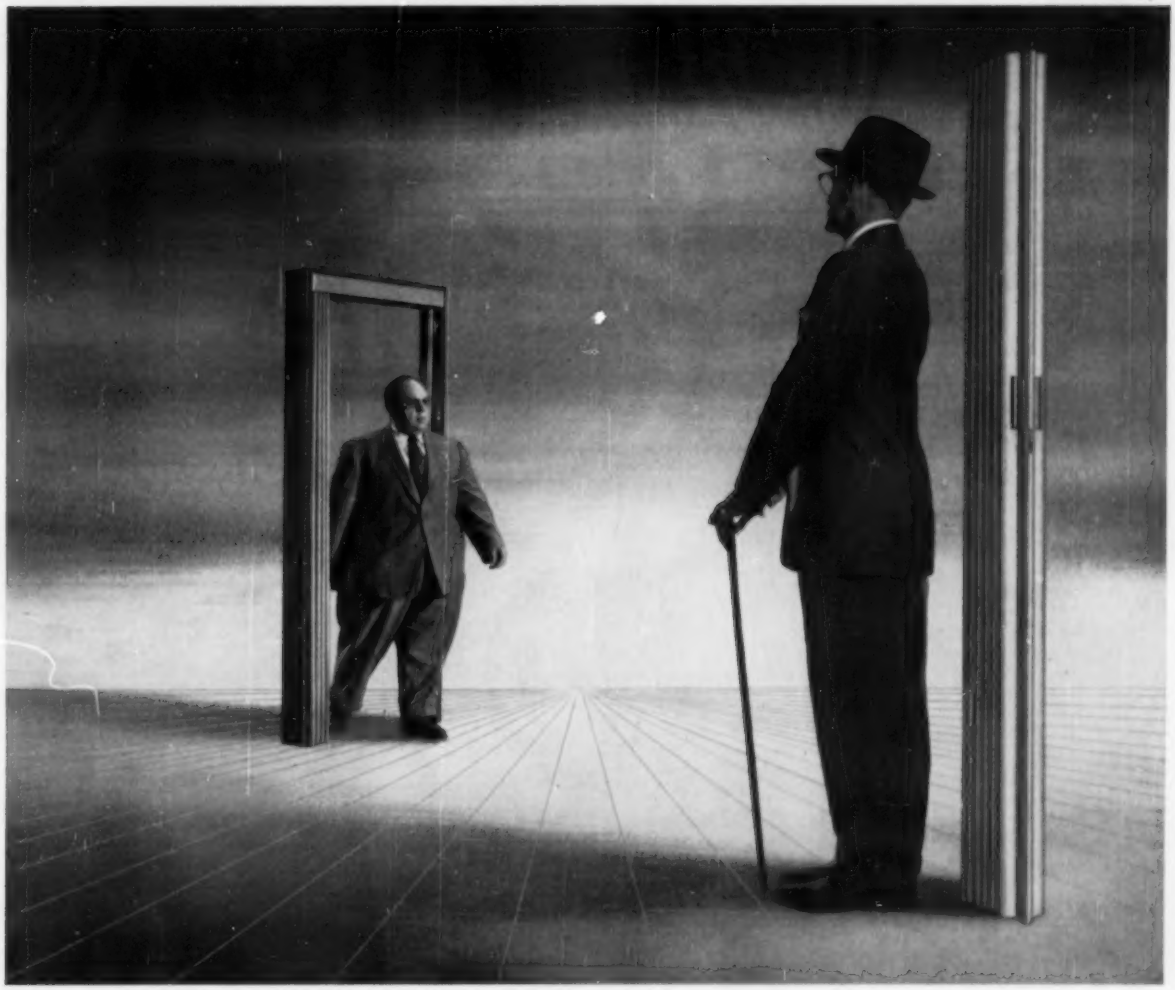
### Wood Folding Door

*Beautywood* doors are low-priced wood folding doors that consist of vertical solid panels of real wood connected with color-fast, flame-resistant, non-cracking Geon. Each panel is hinged with a series of pantagraph self-aligning, aluminum mounting units. No floor guides or bottom tracks are required. *Panelfold Doors, Inc., 122 June St., Dayton, Ohio.*

### Stainless Steel Fountain

Newly designed, lower priced stainless steel drinking fountains are wall-mounted in three different models: fully recessed, semi-recessed and full exposed. A new embossing around the bubbler drilling keeps plumbing rough-in completely above the water level line and is said to allow the fountains to meet the most rigid sanitary codes. *Elkay Mfg. Co., 1874 S. 54th Ave., Chicago 50, Ill.*

*(More Products on page 246)*



# Everybody appreciates Foldoor's slimmer lines

The principal function of folding doors is to save space, and thus conserve costs. FOLDOOR actually saves *more* space—two ways. First, FOLDOOR stacks in less space. For each foot of door opening, FOLDOOR requires a maximum 1½″ of stack room, plus 2½″ for lead post and jamb. Particularly in close quarters, this narrower stack often makes the difference that makes a folding door practical! In addition, FOLDOOR has the narrowest "profile" in the business. Every door is only 5½″ wide when stacked. Aside from saving valuable inches of usable space, this important difference makes "wall pocket" installations possible and much more economical. Your FOLDOOR Distributor can give you full and valuable details on this and other advantages of FOLDOORS. Look him up under "Doors" in the yellow pages.

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**ONLY FOLDOOR IS DIFFERENT AND BETTER THESE SIX WAYS**

**1.** Easier operating **2.** Neater installation **3.** Better appearance **4.** Greater space-saving **5.** Structural durability **6.** Long life in actual service.

HOLCOMB & HOKE
FOLDOOR ®
THE SMARTEST THING IN DOORS

*Gentlemen:*
Please send free copy of new 1956 A.I.A. FOLDOOR Catalog

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DOW

*Home owners benefit . . . and you*

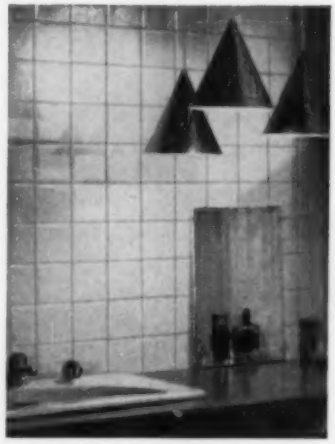
# BUILD PRESTIGE THREE WAYS

**1 STYRON** *clinches sales with the luxury look of guaranteed plastic wall tile.*

Home buyers are looking for beauty, quality and easy care! You'll offer what they want in guaranteed plastic wall tile made of Styron®.

Lustrous Styron plastic wall tile offers a bonus of beauty in its wide range of decorator-styled colors and versatile shapes. Its easy care is famous. And the quality of tile, mastic and installation is guaranteed by the dealer to conform to NBS specifications and FHA requirements. You'll offer a sales-making combination of beauty and complete practicality in your homes that feature Styron plastic tile.

Get in touch with a certified dealer now . . . give your homes the luxury look of guaranteed plastic wall tile made of Styron. It's the year's most exciting . . . most profitable . . . sales clincher.



# 2 LATEX PAINTS

*Recommended by leading architects and builders for their most discriminating clients.*

You, too, can safeguard your reputation by advising your clients to use latex paints. No other finish provides the smooth, long-lasting, *washable* surface for which paints with a latex base are famous.

These modern paints dry quickly to a tough film—free of brush and lap marks, free of painty odor. No matter what tone you want, you will find it in the wide range of colors offered—that's another reason it's smart to recommend latex paints.

# 3 STYROFOAM

*insulation offers cost-cutting construction method for your finest homes.*

Styrofoam® (a Dow plastic foam) is the rigid insulation that adheres permanently to masonry walls with portland cement mortar. Plaster keys directly to it. Furring and lathing are eliminated. Warm, waterproof walls are assured with this strong, lightweight insulation material which has a constant low "K" factor. It will pay you to get the details from Plastics Sales Dept., PL 420K, THE DOW CHEMICAL COMPANY, Midland, Michigan.

*you can depend on* DOW PLASTICS

DOW

# Hospital Speeds Patients' Records from Entry to Discharge

Nursing Stations

Station at Clinic Laboratory

Woman's Hospital, Detroit

Station at Business Office

**Plus...**

Stations At: Clinic Office • Entry • Out-Patient Department • Maintenance

## with a LAMSON AIRTUBE AUTOMATIC SWITCHING SYSTEM

Lamson eliminates all inconvenience to patients caused by delay in records handling. Relieves busy personnel from message carrying. Around the clock, it automatically delivers laboratory test reports, time cards, nurses' reports, correspondence and other intra-hospital communications.

For automatic discharge at a pre-determined station, the station number is dialed by turning two bands near the carrier's top. An electrical circuit is opened between two of the metal rings on the carrier. When brushes at a station contact these rings, the circuit is closed. This actuates a switch which throws a deflector across the carrier's path . . . discharging it.

A Lamson Airtube Automatic Switching System can be installed quickly . . . with low initial and operating costs. Localized wiring saves space and expense. Eliminates wiring leading from a central location. Station controls consist of switch, power unit and deflector. The number of stations can be expanded as the need arises. For complete details, mail this coupon today.

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Plants in Syracuse and San Francisco Offices in Principal Cities

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Please send me a copy of "Lamson Airtube Automatic Switching System."
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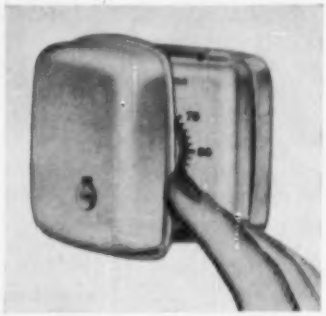
CITY_____ ZONE__ STATE_____


## PRODUCT REPORTS

### Gymnasium Seating Service

A gymnasium seating advisory service makes available professional experience to architects, engineers and school officials. Its features include design and engineering plans, sight-line studies to determine maximum visibility and price quotations on any type of installation. *Wayne Iron Works, 147 North Pembroke Ave., Wayne, Pa.*



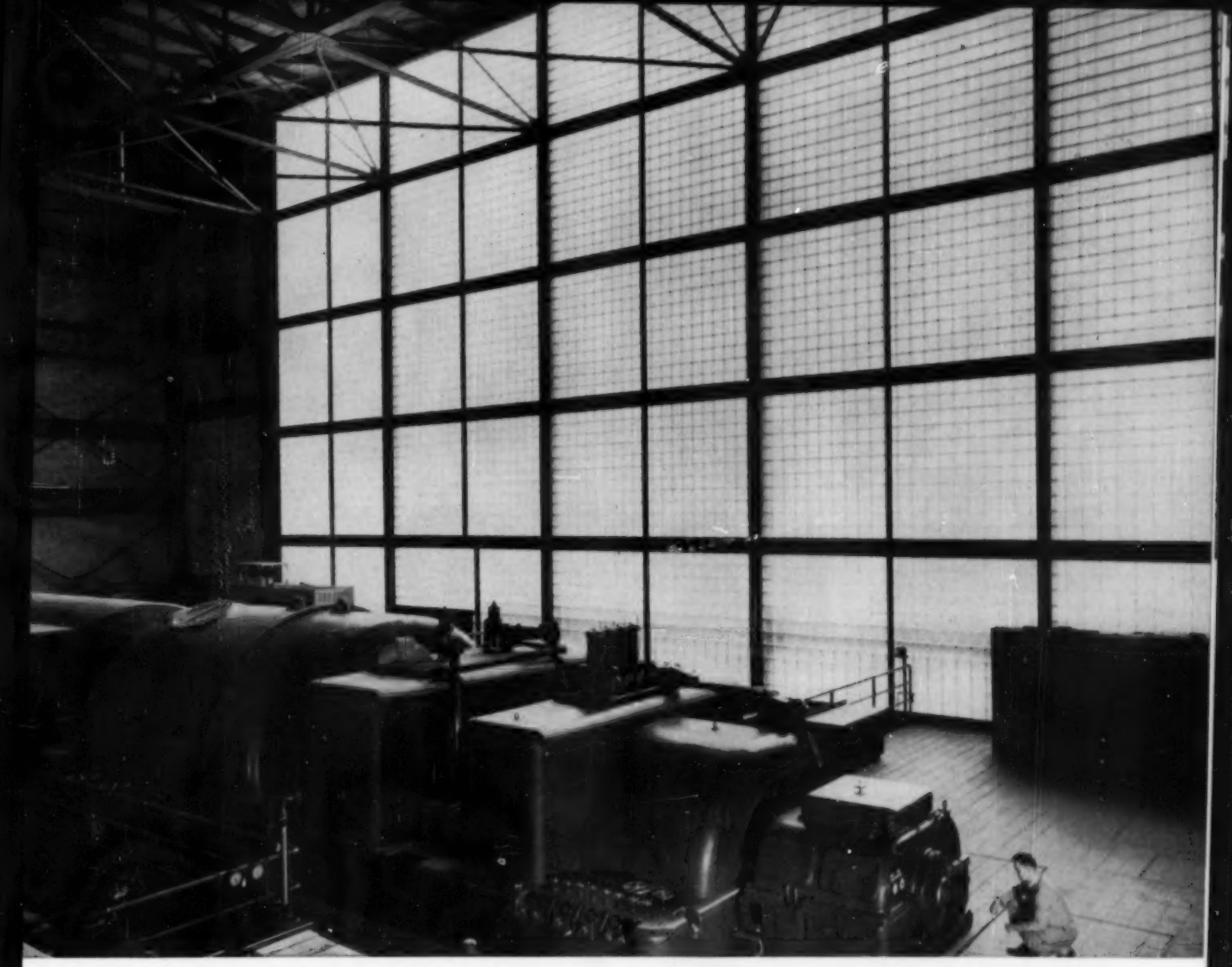
### "Fashion" Thermostat

A "fashion" thermostat that is said to blend with any type of room decoration or furnishing is a "modified Chinese square" with no sharp corners, severe curves or circles to clash with other designs. The unit, with hinged cover, comes in a beige finish, but can be painted to match other wall colors. It is approximately 3 in. square and extends a little over an inch from the wall. *White-Rodgers Co., St. Louis 6, Mo.*

### Wood Kitchens

A new line of wood kitchens features flush-type cabinets and a choice of two woods: birch and Philippine mahogany. Quality veneers are used on both ends of the cabinets to match the veneers on the doors and drawers. Angle brace hinges are adjustable and concealed. Door pulls are finished in polished chrome for birch and polished brass for mahogany. *Morgan Company, Oshkosh, Wis.*

*(More Products on page 250)*



# Major wall areas of Glass Blocks provide maintenance-free daylight

When the designers of Philadelphia Electric Company's Cromby Station considered plans that called for a quarter acre of daylighting, they immediately recognized the need for minimizing maintenance. With such a vast area, sash repair, window cleaning, storm damage, painting, or any other type of maintenance could present major cost items.

They found the answer in PC Glass Blocks. Installed in giant panels on the north and south elevations, the 12-inch *light-diffusing* glass blocks provided other benefits, too. Daylight is glare-free. Excessive heat gain, which could hamper operations, is controlled. And the bold use of the blocks creates an attractive and modern exterior.

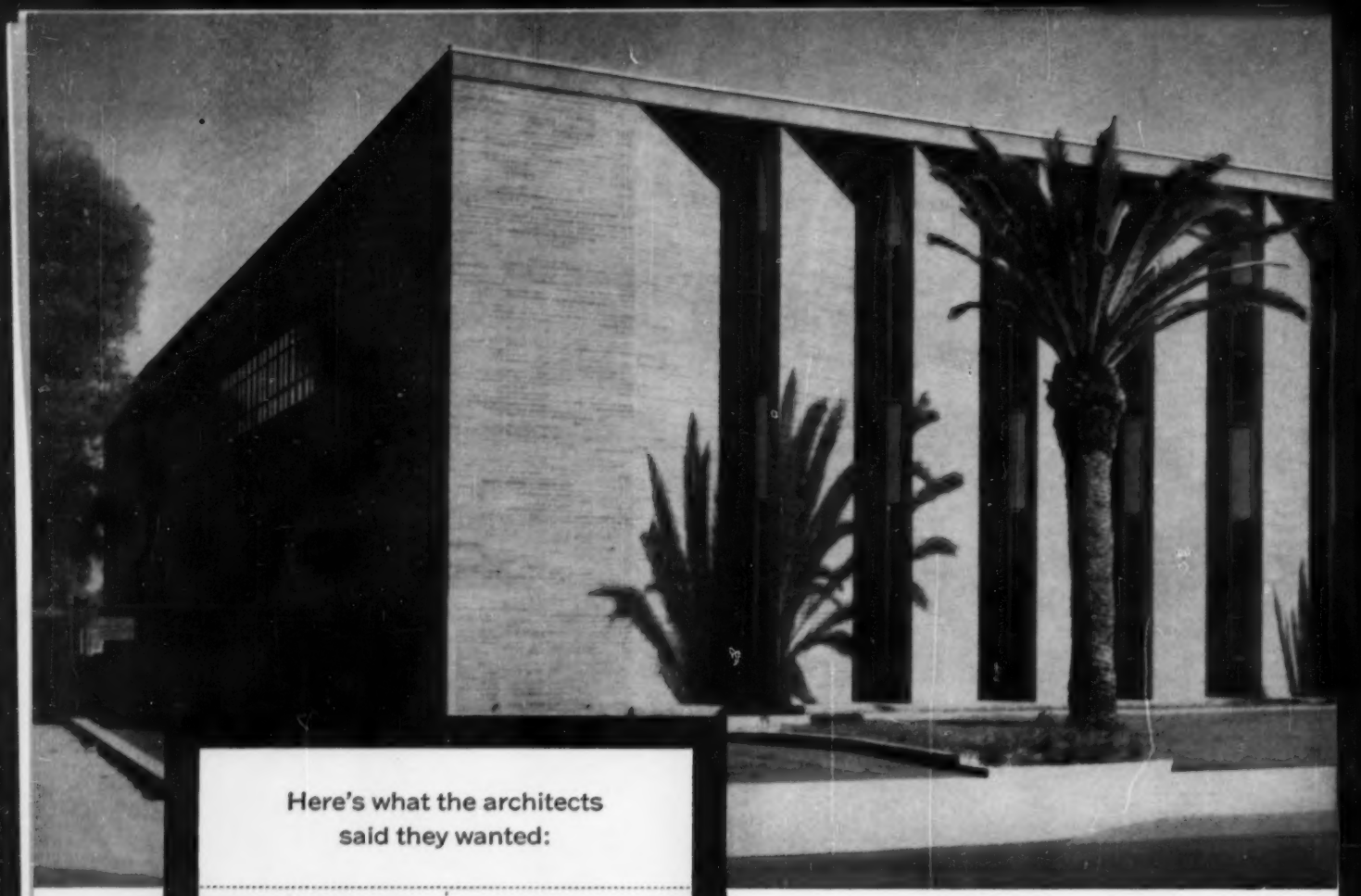
For product information, write or see us in Sweet's. Pittsburgh Corning Corporation, Dept. C-126, One Gateway Center, Pittsburgh 22, Pa. In Canada: 57 Bloor Street West, Toronto, Ontario.

Philadelphia Electric Company's new 350,000 kw Cromby Station, Cromby, Pa.
Consulting Architects:
Harbeson, Hough, Livingston, & Larson, A.I.A.
Philadelphia, Pa.
Engineering and Design:
Philadelphia Electric Company
Philadelphia, Pa.
Mason Contractor:
John B. Kelly, Inc.
Philadelphia, Pa.

PC Glass Blocks

PITTSBURGH PC CORNING ®

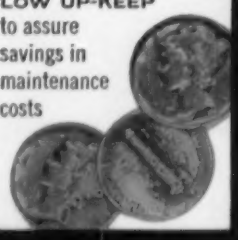
Also manufacturers of FOAMGLAS® insulation



Here's what the architects said they wanted:

**BEAUTY** to match the aesthetics of modern building design

**LOW UP-KEEP** to assure savings in maintenance costs



***Ceco-Sterling Aluminum Windows gave them***

***both...plus weathertight protection...***

Ceco-Sterling Aluminum Windows were used throughout the Pacific Telephone & Telegraph Building, Van Nuys, California. Vertical louvers on the west exposure protect the interior from the south-west sun, thus lowering air-conditioning costs. Architects: Parkinson, Powelson, Briney, Bernard & Woodford. Contractors: Steed Brothers.

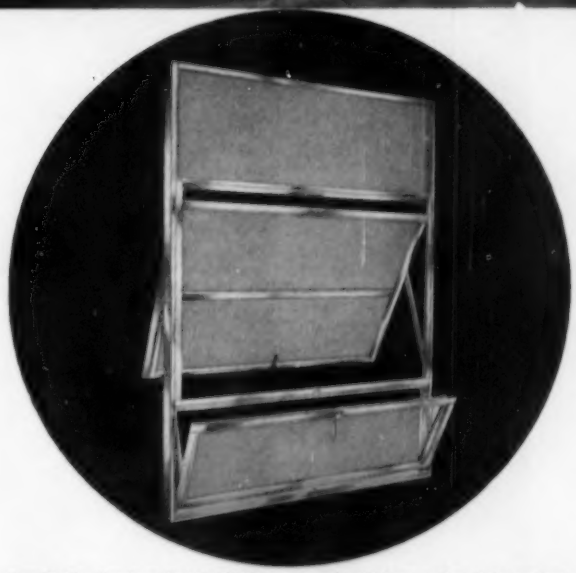
■ Wherever you go—big city or small—you'll notice a few buildings stand out over all others. They're not necessarily the biggest—they're just the most impressive. Usually one of them is the telephone company building. Architects Parkinson, Powelson, Briney, Bernard & Woodford intended it should be that way when they designed the Van Nuys building of the Pacific Telephone & Telegraph Company. So when it came to materials, they gave all a critical eye. The windows, they said, must complement the beauty of the structure. And to be practical, they must assure low maintenance cost. Ceco-Sterling Aluminum Projected Windows filled the bill on both counts . . . the aluminum finish combined pleasingly with the masonry . . . maintenance costs were kept low since aluminum needs no painting. For good measure, Ceco Windows offered another advantage—the tightest seal possible through accurate two-point weathering contacts—keeping air-conditioning costs low. Key-lock hardware was provided so ventilators could be locked shut . . . opened only with a master key for washing. If there are exacting demands on your next building project, call Ceco, makers of the widest line of windows in America. You'll find what you need . . . better engineered, too, for better performance.

CECO STEEL

**CECO STEEL PRODUCTS CORPORATION**

Offices, warehouses and fabricating plants in principal cities
General Offices: 5601 West 26th Street, Chicago 50, Illinois
Metal Windows and Doors • R / C Duct Floors • Steel Joists • Metal Roofing • Lathing Products

**In construction products Ceco Engineering makes the big difference**



Ceco-Sterling Aluminum Projected Windows are made with frame and ventilator sections having a combined depth of 1⅝". These sections resist racking and assure tight-fitting ventilators. Integral extruded weather baffles with full ¼" two-point laps keep air infiltration well below the 1 cu. ft. permitted under AWMA specifications P-A2. Ventilators operate easily, because of counter-balancing design. All glass is in the same plane.

Key-lock hardware was provided so windows in this air-conditioned building cannot be opened except by master-key, to allow window washers access to outside of glass.

Handsome standard locking handles also are available for Ceco-Sterling Aluminum Projected Windows. Hardware is polished white bronze, which is compatible with aluminum.

**ELKAY STAINLESS STEEL DRINKING FOUNTAINS**

Deep drawn stainless steel bowls produced in quantity, together with other standard components, are welded into attractive, modern drinking fountains at realistic prices.

Ingenious engineering at ELKAY has eliminated hours of costly hand forming operations – substituted accurate machine fabrication for painstaking metal craftsmanship without sacrificing quality or eye-appeal.

Illustrated above is the semi-recessed drinking fountain. Also available are fully recessed and fully exposed models. Designed to meet all plumbing codes and for easy, fast installation.

*Write for complete information on the new line of ELKAY Drinking Fountains.*

**ELKAY MANUFACTURING COMPANY**
1874 S. 54th Ave., Chicago 50
The World's Oldest and Largest Manufacturer of Stainless Steel Sinks Since 1920


## PRODUCT REPORTS

### Liquid Rubber Paint

*APCO* liquid rubber paint is said to have excellent adhesion to metal, wood, plastic and concrete. Drying in 20 to 30 minutes, it forms a continuous rubber film which prevents corrosion and penetration of moisture and rain. The manufacturer claims that it will not peel or flake and that it is resistant to oil, gasoline, naphtha and many other solvents. *Adhesive Products Corp., 1660 Boone Ave., New York 60, N. Y.*

### Powerized Rolling Bleachers

*Poweroller* is a mobile electric power unit which makes it possible for one man to open or close any section of 10, 15, 20 or more rows of *Roll-A-Way* bleachers in a few seconds without physical effort. An extended gripper arm on the unit is simply directed into a small opening under the front row seat, as shown above, to engage an attachment bar and start action. Pneumatic tires protect the gym floor. *Universal Bleacher Co., Champaign, Ill.*

### Fluorescent Lighting

*Sky/Lume* semi-indirect fluorescent lighting fixtures were used in the Willow School addition in Menlo Park, Calif., to obtain a 45-fc maintained level of lighting and at the same time easy maintenance. Each classroom uses three rows of 4-lamp 8-ft fixtures mounted on approximately 9-ft centers and suspended 16 in. to the top of the fixtures. The *Sky/Lume* has a one-piece wraparound, hinged basket and indirect shielding media with no distracting dark metal strips. *Electro Silv-A-King Corp., 1535 S. Paulina St., Chicago 8, Ill.*

*(More Products on page 254)*

# 17 years and millions of footsteps later...

## WRIGHT RUBBER TILE and the JOHNSON'S WAX BUILDING

Frank Lloyd Wright says of the building, "It is designed to be as inspiring a place to work in as any cathedral ever was to worship in." Unique inversely tapered columns lend striking charm to the interior and at the same time provide additional floor space.

When he designed it in 1938, Frank Lloyd Wright described the Johnson's Wax Administration Building in Racine, Wisconsin as, "an architectural interpretation of modern business at its best."

Time has proved the soundness of this inspired thought. It has been the meeting ground of countless architects, builders, artists and writers who have come to Racine to study this brilliant forerunner of modern industrial design.

And time, too, has proved the soundness of the materials selected for this uniquely functional building.

WRIGHT—famous over 100 years for outstanding quality floor products—was specified for use throughout the building. Today, seventeen years later, with only regular wax maintenance, WRIGHT Rubber Tile is lustrous and new-looking.

The facts speak for themselves. We suggest you consider WRIGHT Rubber and Vinyl tile for your next project. It's one sure way of providing your clients the very best in fine-quality tile flooring.

**WRIGHT MANUFACTURING COMPANY**

**division of MASTIC TILE CORPORATION OF AMERICA**

Houston, Tex. • Joliet, Ill. • Long Beach, Calif. • Newburgh, N. Y.

Confetti • Aristoflex • Parquetry • Maticork • Asphalt Tile • Rubber Tile • Vinyl Tile • Cork Tile • Plastic Wall Tile

# Design for all-season window beauty!

# Andersen *Windowalls*

TRADEMARK OF ANDERSEN CORPORATION

*Andersen Gliding Windows in an Illinois home. Paul MacAllster, designer.*

Wintry winds won't cause cold drafts around these fine Andersen Gliding Windows. Yet, these wood window units are designed to provide a sweeping view of the outdoors. And, in warmer weather, they glide easily in their plastic tracks . . . open wide to admit oceans of fresh air. Like all Andersen WINDOWALLS, these Gliding Units are made of toxic-treated *wood* to provide natural insulation against both heat and cold . . . natural window beauty that blends with your design, with the structural material of your choice.

For full specification data on WINDOWALLS, see Sweet's Files, or write Andersen for Detail Catalog and Tracing Detail Files. Sold exclusively by lumber and millwork dealers.

ANDERSEN CORPORATION • BAYPORT, MINNESOTA

### G-E 1957 Appliances

The kitchen room divider shown at right contains four of the new 1957 G-E appliance models: combination washer-dryer, Disposall-equipped sink, dishwasher and range. The *Empress* dishwasher is 30 in. wide and features power opening and closing. A vinyl lining eliminates breakage, and mechanical improvements eliminate the need for hand rinsing and scraping of dishes. Other models are the 24-in. *Princess* and the portable *Mobile Maid*.

The 1957 ovens feature double ovens, if desired, removable doors for easy cleaning, and a no-drip raised edge around the top.

The 1957 refrigerator-freezers, shown above, can be built in easily because they come in a squared-off cabinet. Recessed door hinges eliminate the need for clearance on the sides.

The new *Thinline* room air conditioner line numbers a variety of models 16½ in. deep which can be painted. A full 1-hp model can operate on 115 volts. *General Electric Co., Appliance Park, Louisville 1, Ky.*

### "Set" for Iron Rails

*Rail-Set* is a compound for setting ornamental iron rail posts and porch column legs into masonry floors. It sets in about 15 min, expanding as it dries, thus getting a tight, permanent hold. It can be used also for installing industrial equipment and doing concrete patching. *Tennessee Fabricating Co., 1490 Grimes St., Memphis 6, Tenn.*

for a
SECURE barrier against
hydrostatic head
call for

**Karnak®**

WATERPROOFING PRODUCTS

**Here's how the Karnak Membrane System is superior to ordinary methods of waterproofing, especially where there is danger of water seepage.**

THE Karnak long-fibre-cotton cloth, which has been saturated with specially prepared asphalt, is layered, on the job, with alternate moppings of a highly refined and very ductile asphalt. The open mesh of the fabric allows the coating to penetrate and interlock the layers. This provides a firm mechanical bond that resists abrasions, cracks, settling and maintains water resistance through the life of the structure.

Karnak Fabric is non-sticking, unrolls easily to the very end . . . works faster with no waste. It is packed in sturdy corrugated cartons for protected shipping and storage. Available through waterproofing contractors, or distributors or write us for information. ***Made by Lewis Asphalt Engineering Corp., 30 Church St., New York 7, N. Y. Dept. 112***

SEE OUR CATALOG IN SWEETS FILE

OTHER KARNAK PRODUCTS

Asphalt Roof Coatings and Cements
Asphalt Emulsions
Floor Mastic
Asphalt Paint
Aluminum Roof Coating
Wood Block Mastic
Tile Cement
Joint Filler

***Desks, wash basins, shelves*** *at Arthur Talmadge School, Springfield, Mass., have "kid-proof" melamine laminate surfaces.*

## melamine laminates at windows, wash basins and work areas protect school property with minimum maintenance

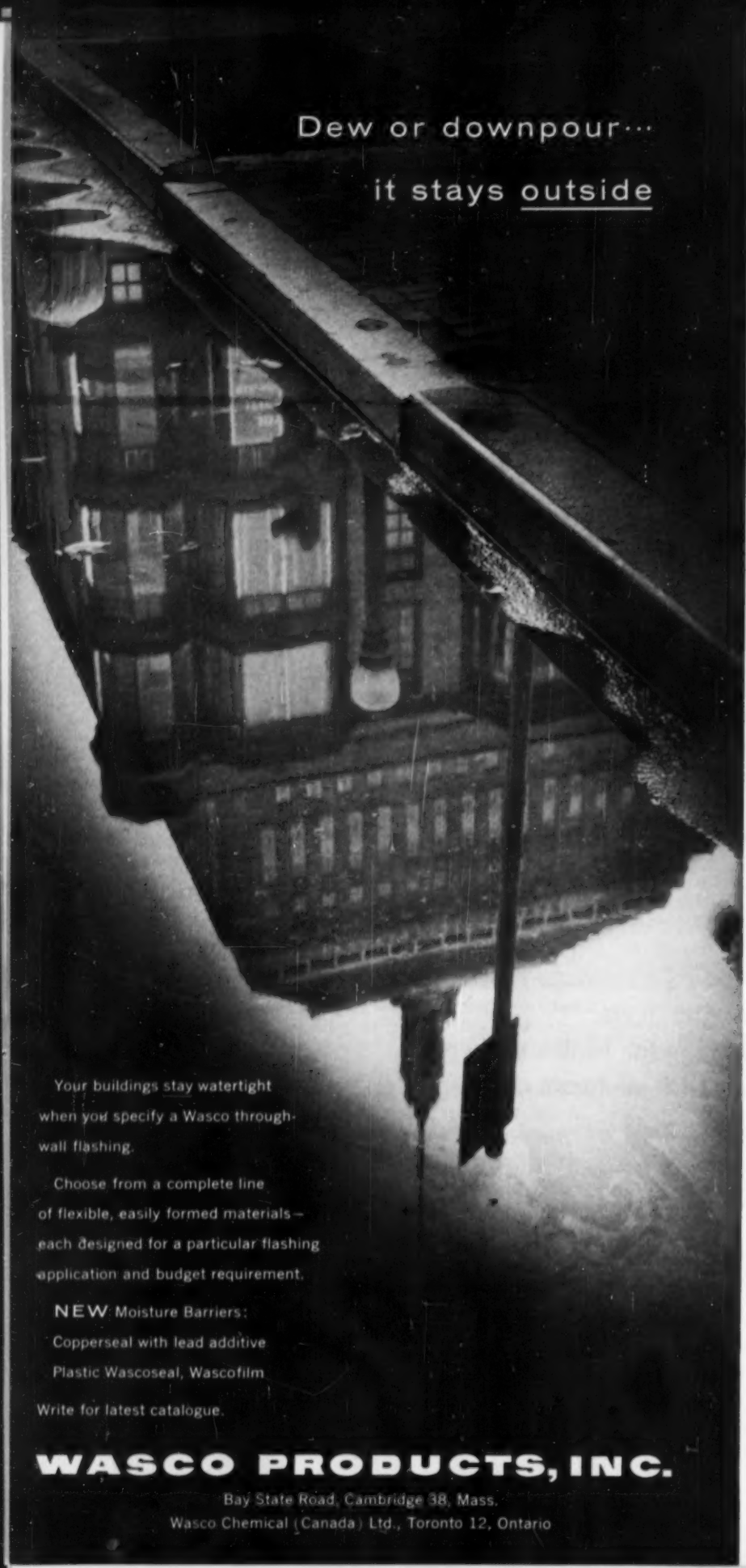
Melamine surfaced school desks and counters have proved they "pay their way" in lower maintenance costs. That's why melamine laminates are more and more being used for window sills, doors, push and kick plates, toilet partitions and wall paneling in public buildings as well as homes.

Sold in a wide variety of colors and patterns under different trade names, these laminates require an absolute minimum of maintenance. They never need painting or finishing. The smooth tough surface washes clean with a damp cloth—no need for scrubbing, waxing, or buffing. Melamine laminates provide good resistance to scratches, dents, chipping, cracking, burns or stains. They withstand heat up to 275° F.—are unharmed by alcohol, most acids or alkalis.

MONSANTO supplies melamine resins for laminates sold under these names: Consoweld, Corlex, Decarlite, Farlite, Fiberesin, Lamin-Art, Micarta, Nevamar, Pionite, Railite, Resilyte, Richelain, Textolite, Wilson Art. If you would like additional information about any of these, we will be glad to refer your inquiries to the manufacturer.

**A New Report,** *"Pipelines to the Future," containing an evaluation of different types of plastic pipe is available at $1.00 each. This study was compiled by Monsanto's Structural Plastics Engineering Group. You are invited to write them on any question pertaining to the use of plastics in construction. Monsanto Chemical Co., Room 242, Springfield 2, Mass.*

MONSANTO




Your buildings stay watertight when you specify a Wasco through-wall flashing.

Choose from a complete line of flexible, easily formed materials – each designed for a particular flashing application and budget requirement.

NEW Moisture Barriers:
Copperseal with lead additive
Plastic Wascoseal, Wascofilm

Write for latest catalogue.

**WASCO PRODUCTS, INC.**

Bay State Road, Cambridge 38, Mass.
Wasco Chemical (Canada) Ltd., Toronto 12, Ontario


## PRODUCT REPORTS

### "Psychiatric" Venetian Blinds

A Venetian blind which can be operated by mentally disturbed patients without harm to themselves or the blinds has been devised for use in detention rooms of mental hospitals. Hung halfway between the window panes and heavy immovable mesh screens, *Levolor* Linen Fresh blinds can be operated by turning small handles set in the base of the window frame. The blinds, of gray aluminum with a fabric-like finish, blend with the screening. *Levolor Lorentzen, Inc., 720 Monroe St., Hoboken, N. J.*

### Torque Control Tool

A *Torsion Bar Torque Control Impactool* for use in bolted construction is said to combine the advantages of the standard impact wrench with completely automatic control. The tool incorporates a torsion bar which can be twisted to the desired stress on a simple jig, then locked in position with a calibration collar. The tool runs nuts with full speed and power, but when nut running resistance reaches the stress preset in the torsion bar, the impact mechanism rebounds instantly and trips a rubber-faced shut-off valve. *Ingersoll-Rand Co., 11 Broadway, New York, N. Y.*

### Color-on-Color Enamel

*Dura-Flex* is a one-application, speckled, color-on-color enamel which consists of a base color in which specks of various colors are suspended. These specks form the texture appearance of the paint. The paint is said to wear extremely well and to hide scratches and abuse. *U.S. Paint, Lacquer & Chemical Co., Singleton at 21st St., St. Louis 3, Mo.*

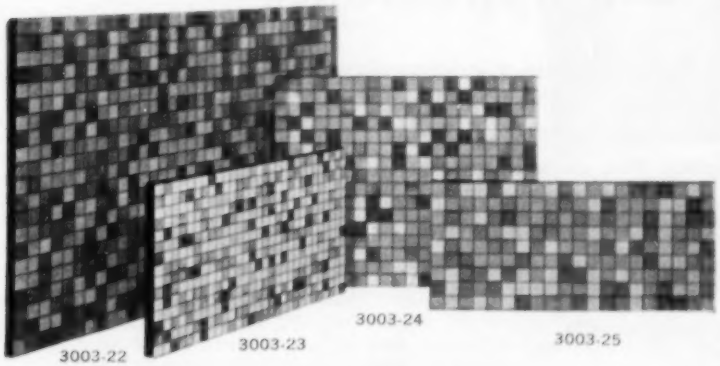
### Correction

The *Touchette* touch-action wall switch described on page 297 of the October issue of *Architectural Record* operates on full line voltage "without relays, transformers or mercury, and no special wiring is required." The original announcement read "with relays, etc.," which is incorrect. *Rodale Mfg. Co., Inc., Emmaus, Pa.*

Hallmark Bldg.,
Kansas City, Mo.
Welton Becket and Associates,
Architects and Engineers
Long Construction Co.,
General Contractor
Slater Tile and Mantel Co.,
Tile Contractor

# Pan-O-ramic blends for outstanding architectural effects

The popular use of ceramic mosaics as a surfacing material is illustrated in this outstanding new building. Unglazed ceramic mosaics and pavers, skillfully employed, create rich architectural colorings, and provide a permanent maintenance-free surface.




New Pan-O-ramic Blends—Standard colors, combined in mass, create new hues and interesting textures. Similar effects are available in a wide selection of blends.

**American-Olean unglazed ceramic mosaics were used for:**

Exterior walls at grade
Columns
Facade overlooking plaza
Marquee ceiling
Planting boxes
Foyer walls
Executive suite washrooms

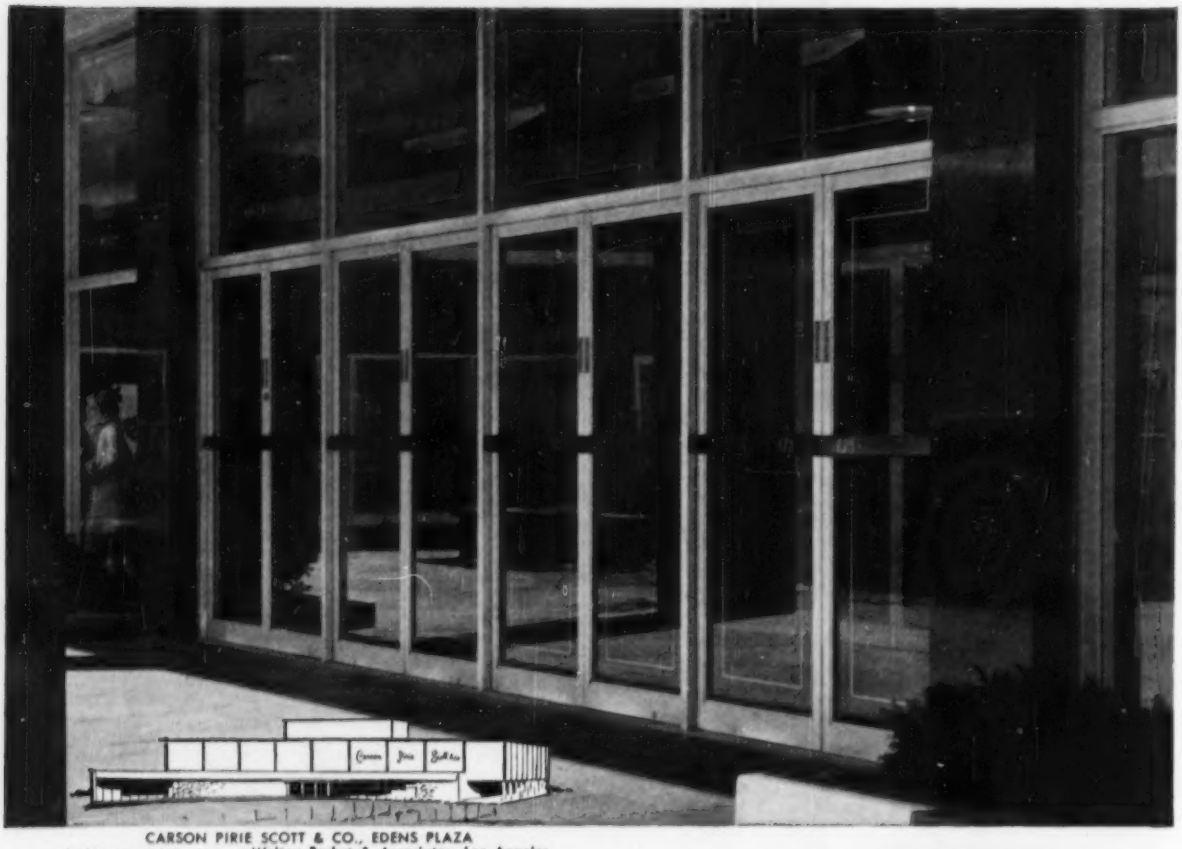
**Unglazed pavers were used for:**

Entrance walk
Exterior wall at grade
Foyer floor
Terrace, third floor

## American-Olean Tile Company

Executive Offices: 1225 Cannon Ave., Lansdale, Pa.
Factories: Lansdale, Pa., Olean, N.Y.
Member: Tile Council of America
Producers Council

*when only the finest is adequate...*



CARSON PIRIE SCOTT & CO., EDENS PLAZA
Architects and Engineers: Welton Becket & Associates, Los Angeles
Graham, Anderson, Probst and White, Chicago

# equip ENTRANCE DOORS with RIXSON for durability and appearance

**CONCEALED floor type CLOSERS**

**for single acting doors**
*wood, metal or glass*

- offset hung
- center hung
- butt hung

**for double acting doors**

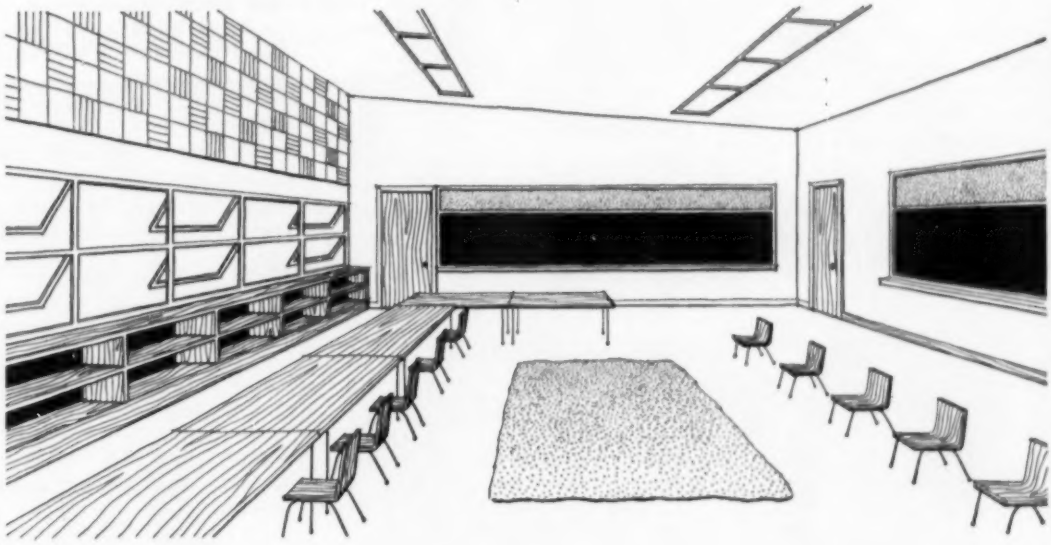
- wood or metal doors
- glass doors

Entrance doors create the first impression of a building. Openings should be smooth and gentle, closings silent and safe. Still the door must withstand great abuse and be under complete control at all times. This requires an efficient, rugged, durable closing mechanism. RIXSON is world famous as the originator of concealed floor type closers with more than half a century's experience in engineering, testing, and development. There are installations over 45 years old in which RIXSON "floor checks" continue to function satisfactorily.

RIXSON floor type entrance closers give maximum strength of installation and *complete* concealment of the mechanism—including the arms, on offset hung and center hung doors.

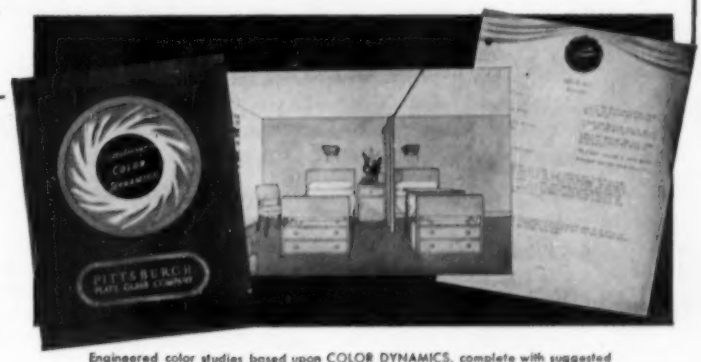
**THE OSCAR C. RIXSON COMPANY**

9100 west belmont ave. • franklin park, illinois



## *You'll Make Your Plans More Acceptable*

# By Adding an Engineered Color Study!




Engineered color studies based upon COLOR DYNAMICS, complete with suggested color samples, are bound in booklet form. Also included are recommendations for the correct types of coating to be used on every kind of material and construction.

**THE importance of the effect** of color environment on people is today recognized by practically everyone who owns or operates an industrial, commercial or service enterprise.

● **That's why** you can make your plans more acceptable to clients by including a detailed color program.

● **Why not let us submit** *engineered* color recommendations to go with your plans? These recommendations are based upon the principles of COLOR DYNAMICS®. This modern system of painting has demonstrated its ability to improve productive efficiency, morale and well-being in many fields.

● **We'll be glad to** make such a detailed study without cost or obligation. Simply call your nearest Pittsburgh Plate Glass Company branch and arrange to have one of our color consultants see you at your convenience. Or mail this coupon.

**For Additional information on COLOR DYNAMICS see Sweet's Architectural File, Section 14/PL**

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**Paint Division, Dept. AR-126**
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☐ Please have your representative provide us with further information about Pittsburgh's Free COLOR DYNAMICS engineering service for architects.

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## OFFICE LITERATURE

*(Continued from page 206)*

**Timely Royal Line (AIA 31-F-23)**

File folder describes Royal Line lighting fixtures for commercial and residential installations. *Timely Lighting Products, Inc., 4501 Perkins Ave., Cleveland 3, Ohio.*

**Diffusers, Registers, Grilles**

New catalog covers complete line of diffusers, registers and grilles for heating and cooling. 32 pp. *The Lima Register Co., Lima, Ohio.*

**The Balanced Door (AIA 16-A-1)**

Presents a description of the control mechanism, details and photographs of many Ellison door installations. 12 pp. *Ellison Bronze Co., Inc., Jamestown, N. Y.**

**Air Cooling Units**

Bulletin 185-H describes new air cooling units for cold storage, meat chilling and processing rooms, dairy and ice cream plants, breweries and other low temperature areas. 12 pp. *Frick Co., Waynesboro, Pa.**

**Hardwood Plywood Panels**

Contains detailed descriptions of *Cadillac* sequence-matched hardwood plywood panels for commercial, institutional and industrial buildings. 4 pp. *Atlas Plywood Corp., 1430 Statler Bldg., Boston 16, Mass.**

**Furniture Facts**

The 1956–57 Seng Handbook presents facts about furniture styling and construction. 188 pp. 25¢. *The Seng Co., 1450 No. Daylon St., Chicago 22, Ill.*

**Mechanical Bleachers**

Presents construction features, specifications and diagrams of mechanical folding, portable and permanent bleachers. *Berlin Chapman Co., Bleacher Div., Berlin, Wis.**

**Wood Awning Windows**

Presents a complete file of specifications and construction details for *Woodco E-Zee Loc* wood awning windows. *Woodco Corp., Box 31, North Bergen, N. J.**

**Fasteners**

A new edition of the Sterling fastener catalog lists standards, weights, design and other information about metal fasteners. *The Sterling Bolt Co., Chicago.*

**Luminous Ceilings (AIA 31-F-21)**

Explains six different types of luminous ceilings, with emphasis on *Acusti Luminus, Modu-Luminus* and *Electric-Luminus* ceilings. 4 pp. *Luminous Ceilings, Inc., 2500 W. North Ave., Chicago 47, Ill.**

**Superior Builder's Hardware**

(AIA 27-C) Catalogs full line of panic exit devices for single and double doors in solid brass, bronze and iron and with a variety of special finishes. *Monarch Hardware & Mfg. Co., P.O. Box 43, LaGrange, Ky.*

**Warm Air Heating**

*Residence Type Warm Air Heating and Air Conditioning Systems* is a new NFPA Standard No. 90B. 35¢. *National Fire Protection Assn., 60 Batterymarch St., Boston 10, Mass.*

**Stran-Steel Buildings**

Catalog details an enlarged line of industrial and commercial buildings and accessories, including a new series of rigid frame structures, two 50- and 60-ft bow-string truss buildings and the *Stran-Satin* metal wall. 20 pp. *Stran-Steel Corp., Ecorse, Detroit 29, Mich.**

*(More literature on page 266)*

Monona-Blooming Grove Union High School
Madison, Wisconsin

Barneveld School, Barneveld, Wisconsin

"BIDS WITHIN THE BUDGET
Attractive . . . Low Upkeep"

Rilco beams in repetitive modular usage helped Madison, Wisconsin architects, Gausewitz and Cashin, keep costs of these modern schools within an unusually low budget. The above are complete unit costs including mechanical trades!

Rilco laminated wood members furnish their own warm and rich interior finish . . . do not require the usual covering of structural elements. They are factory cut, shaped and drilled for connections . . . ready for speedy and economical erection.

Whether you plan a school, church, factory or commercial building, consider the savings, utility, fire safety and outstanding beauty of Rilco laminated wood members. Write for new catalog and specifications.

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works wonders with wood

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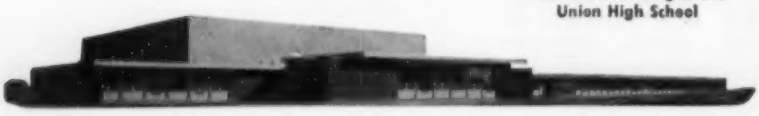
2518 FIRST NATIONAL BANK BLDG. • ST. PAUL 1, MINN.
District Offices: Wilkes-Barre, Pa., Fort Wayne, Ind., Tacoma, Wash.

Monona-Blooming Grove
Union High School



# FOAMGLAS®

*the cellular, stay-dry insulation*

**STAYS DRY**—Here's how you can prove to yourself that FOAMGLAS does stay dry. Cut a piece from a FOAMGLAS sample. Place it in water. Note how its hermetically sealed glass cells keep it afloat. Weight it down for days, weeks or longer if you like. Remove the weight and it bobs back to the surface . . . proof that the sealed cells have absorbed no water—still have their original insulating efficiency.

## Wet insulation is no insulation . . .

## Prove to yourself that FOAMGLAS stays dry!

### Send for a sample and test it!

Moisture conducts heat! When an insulation begins to absorb moisture, its efficiency nosedives. It's no longer an insulation.

That can't happen to FOAMGLAS. Every block of this unique insulating material is composed of millions of hermetically sealed glass cells. Each cell is an individual insulating unit . . . and each is watertight. Water and vapor are sealed out to insure constant insulating effectiveness.

In a few minutes, in your own office, *you* can prove to yourself that FOAMGLAS *stays dry*. Send today for a free sample and directions for simple "desk top tests" you can perform, as illustrated on this page. You'll soon see why it pays to insulate floors, walls, ceilings, roofs, piping and equipment with FOAMGLAS. You're assured constant, long-lasting insulating efficiency without the headache and expense of insulation replacement.

Vapor-proof

Strong and rigid

Inorganic and incombustible

Lightweight

Pittsburgh Corning Corporation

Dept. B-126, One Gateway Center, Pittsburgh 22, Pa.

In Canada: 57 Bloor Street West, Toronto, Ontario

**also manufacturers of PC Glass Blocks**

# Flour City Balanced Doors....

*FEATURES:* Door and frame are an integral unit • No bulky projections on door or frame • No cutouts for closers in head or floor of surrounding construction •

You assure your client of years and years of trouble-free service when you specify Flour City balanced doors. These doors will speed traffic flow as well as provide high customer convenience . . . the type of convenience which customers appreciate sufficiently to encourage their calling again.

Through a unique pivot action, Flour City's balanced door achieves an ease of operation never possible in conventional swing doors. A combination of mechanical elements overcomes inertia and wind pressure or suction in such an easy manner that the opening action is achieved with a minimum of effort.

In the balanced door the frame and door function together. Inside the hinge jamb is a spring so adjusted that the action of opening the door imparts a final torque to the spring. When the door is released, the action of the spring is transmitted to the hydraulic cylinder, permitting the door to close quickly and evenly. In the last few inches of closing, the speed of the door is checked to allow it to close quietly. A concealed bumper protects the door from damage should it be opened violently.

FC

The FLOUR CITY Ornamental IRON COMPANY

2637 27th AVENUE SOUTH • MINNEAPOLIS, MINNESOTA

# ...designed for repeat traffic

Opens with ease; closes rapidly and quietly • Folding action provides less projection onto sidewalk or into vestibule • Hydraulic check and bumper • Hold-open device • Two speed adjustments • Door of welded construction throughout • No customer maintenance of mechanical features • Repairs by factory personnel

## SPECIFICATIONS FOR FLOUR CITY BALANCED DOOR

### GENERAL

Balanced doors (and sidelights) of the type and size shown on the plans shall be as manufactured by The Flour City Ornamental Iron Company. Doors and frames shall be furnished with all necessary hardware and anchors and shall be equipped with a hydraulic check, bumper, hold-open device and adjustment for two closing speeds.

### MATERIAL

| Series | Material | Thickness (door) | Thickness (frame) |
|---|---|---|---|
| BD 100A | Aluminum | .125" Sheet or Extruded | .081" min. Sheet; .093" Extruded |
| BD 100B | Bronze | .064" Sheet | .064" Sheet |
| BD 100WB | White Bronze | .064" Sheet | .064" Sheet |
| BD 100S | Steel | .074" Sheet | .062" Sheet |
| BD 100SS | Stainless Steel | .062" Sheet | .062" Sheet |

### CONSTRUCTION

**Frame:** Frames shall consist of extruded or sheet material (as specified) applied to a steel sub-frame in the manufacturer's plant. One jamb section shall be removable for access to the closer spring.

**Door:** Doors shall be fabricated of extruded or sheet material (as specified) with top and bottom rails welded to the stiles.

### HARDWARE

Push and pull bars, or plates, shall be Flour City's standard hardware (or as shown on the plans and specified). Lock schedule to meet various job conditions shall be submitted by the manufacturer for architect's approval.

### THRESHOLDS

Thresholds shall be Flour City standard as follows:

**Aluminum doors:** Extruded aluminum or cast aluminum with abrasive surface (Specify which).

**Bronze doors:** Extruded bronze or cast bronze with abrasive surface. (Specify which).

**Steel doors:** Specify

**Stainless steel doors:** Extruded white bronze or cast white bronze with abrasive surface.

### GLAZING PROVISIONS

Glass stops shall be on the interior side of the door. For aluminum doors a snap-on type shall be used; for other materials, channel stops assembled with screws.

### FINISH

Finish of doors and frames shall match samples submitted to the architect by the manufacturer.

Finish for operating arms shall be as follows:

**Aluminum doors:** Dull chrome plated
**Bronze doors:** Bronze plated
**White bronze doors:** Nickel plated
**Steel doors:** As specified
**Stainless steel doors:** Nickel plated

### SHOP DRAWINGS

Shop drawings shall be submitted, in triplicate, for architect's approval. Drawings shall show sections of doors and frames, details of construction, hardware, and methods of anchoring frame in the opening.

### ERECTION

All balanced doors shall be erected by men employed by the door manufacturer, skilled in this type of work, and shall include final adjustment for proper and easy operation of the door after glazing.

### GUARANTEE

Doors shall be guaranteed for a period of one year against defective material and workmanship.

### GLAZING, GROUTING AND CAULKING

Glass and glazing, grouting and caulking shall be furnished under another contract.

*Reasons for specifying Flour City Balanced Doors:*

It is produced by competent, experienced, engineering and production staffs from design to erection.

100% inspection of every part, including pressure testing of each hydraulic cylinder.

Hydraulic fluid of a viscosity to permit easy operation winter or summer.

A lubricant with a performance range of −100° F. to + 250° F.

Erection by Flour City's skilled erection crews.

Factory representatives available when required.

The craftsmanship and integrity of a firm producing only architectural metalwork of quality since 1893.

*For further information check our Door Catalog in Sweet's File* 16a/FL

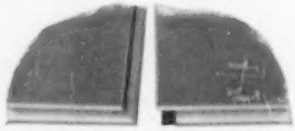
Here's a new prefinished, hollow-core panel that saves installation time and dollars

# Marlite Korelock® *ceiling and wall panels*

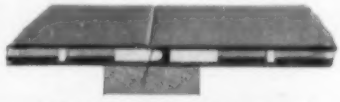
Ready for use without painting or finishing, Korelock is available in 10 decorator colors in new satin-lustre finish, plus 6 distinctive wood patterns. Particularly adaptable to building and modernizing heavy traffic areas, Korelock has a soilproof baked finish which stays like new for years. Maintenance time and expense is drastically reduced because Korelock wipes clean with a damp cloth.

Korelock's simplified installation eliminates backing materials and adhesive. Available in easy-to-handle sizes 24 inches by 48 inches and 24 inches by 96 inches. All panels are tongued and grooved, eliminating the need for joint coverings.

Get complete details on Korelock ceiling and wall panels by writing Marlite Division of Masonite Corp., Dept. 1205, Dover, Ohio.



**Structurally Strong**—Korelock is really a wall in itself! The face of Korelock panels has the same baked plastic surface as all Marlite panels, laminated with a rigid interlocking wood core, and a sealed back of Masonite Tempered Duolux. The ⅛" thick panels combine beauty, strength and durability.

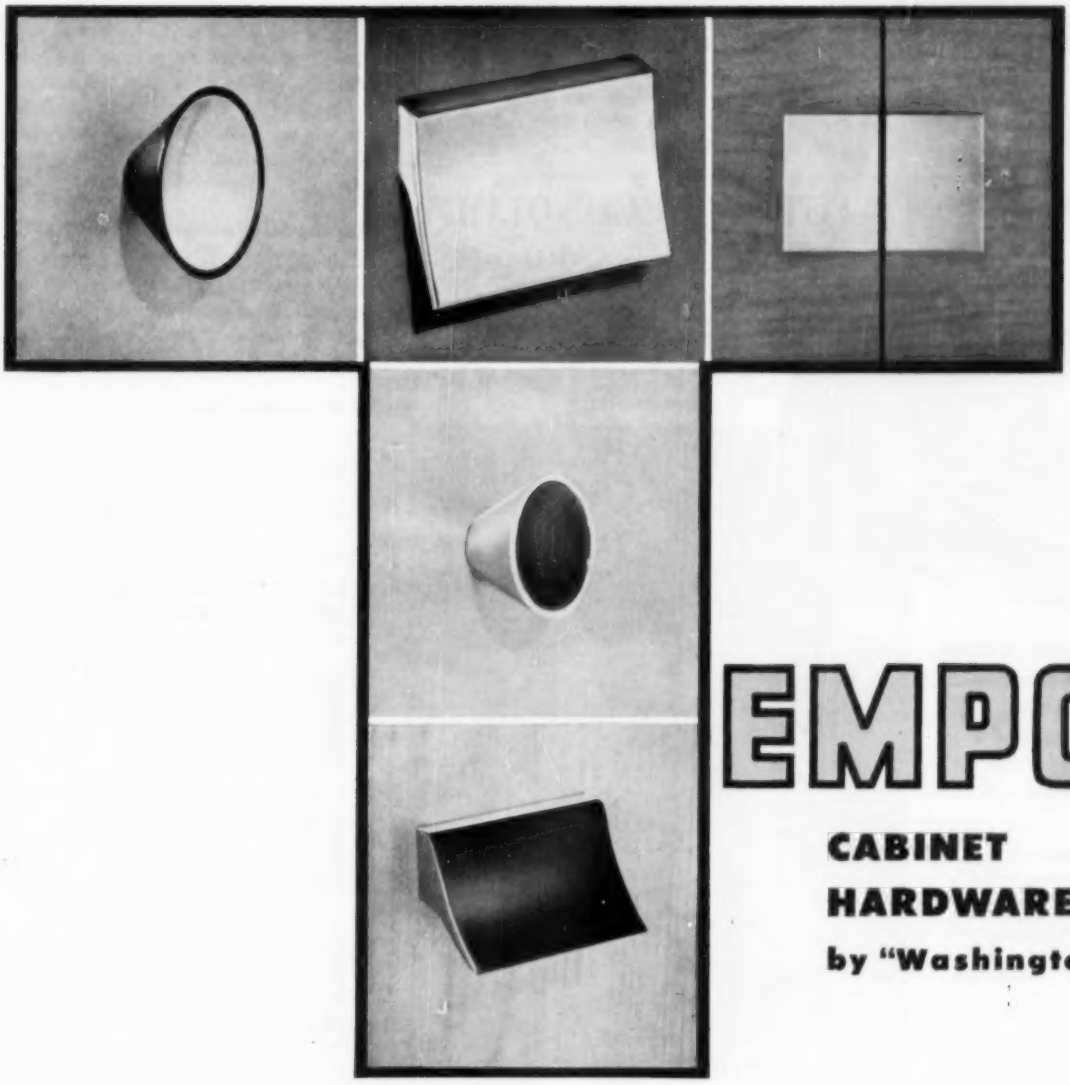


**Easily Installed**—The special tongue and groove "V" joint makes installation rapid and simple, over studs or furring strips, requiring no backing material, adhesive or joint coverings. Tongues are pre-drilled for screw-type nails, provided with panels.

# Marlite® *plastic-finished paneling*

MARLITE IS ANOTHER QUALITY PRODUCT OF MASONITE® RESEARCH

for new or remodeled
kitchens, furniture, or built-ins



EMPO

CABINET
HARDWARE
by "Washington"

WASHINGTON LINE

FOR A FREE FOLDER, SEE YOUR
DEALER, OR WRITE TO:
WASHINGTON STEEL PRODUCTS, INC.
DEPT. AR-12, 1940 EAST 11th STREET
TACOMA 2, WASHINGTON

## OFFICE LITERATURE

### Weathersealing Materials

Contains factual data on *DEL* protective coatings and synthetic rubber compound for caulking, glazing and sealing. *David E. Long Corp., 220 East 42nd St., New York 17, N. Y.*

### Waterproofing Walls

Bulletin JCW-256 describes *Jennite J-16* waterproofing application for foundation walls. *Maintenance Inc., Wooster, Ohio.*

### Genuine Leather Tiles

Folder shows installations of *Pigs-Kin* leather tiles on floors, walls, table tops, counters, benches, doors panels and trim. *Kiefer Tanneries, 240 Front Ave. S.W., Grand Rapids 4, Mich.*

### In Lighting It's Solux

(AIA 31-E) Catalogs recessed troffers, commercial fluorescent and slimline luminaires, incandescent series, night lights, exit signs and other luminous forms. 8 pp. *Solux Corp., 58-17 28th Ave., Woodside 77, N. Y.*

### Louverdrape Vertical Blinds

(AIA 35-P-3) Shows mechanical features and some installation photographs of vertical louver blinds of fabric or metal which can be controlled by rotating and traversing. 4 pp. *Vertical Blinds Corp. of America, 1936 Pontius Ave., West Los Angeles 25, Calif.*

### Cooling Load Estimate Form

Copies of this form, which was first issued in August as part of the new ARI Standard 530, are now being bound in pads of 50 forms and are available at $1 per pad. *Air-Conditioning and Refrigeration Institute, 1346 Connecticut Ave N.W., Washington 6, D. C.*

### Industrial Fluorescent Lighting

Bulletin B contains descriptions, illustrations and lighting data on 394 industrial fluorescent lighting units. 36 pp. *Benjamin Electric Mfg. Co., Des Plaines, Ill.**

### Job Tailored Cold Plates

(AIA 35-C-12,3) Bulletin 563 gives technical data on cold plates for cafeterias. 4 pp. *Dean Products, Inc., 1042 Dean St., Brooklyn 38, N. Y.*

### Hauserman Divider Wall

Describes graphically how divider walls can be used to turn cluttered open floor space into semi-private work units. 6 pp. *The E. F. Hauserman Co., c/o Market Development Mgr., 6800 Grant Ave., Cleveland 5, Ohio.**

### Latex Concrete Topping

Catalog sheet gives facts about concrete topping and floor patch. *The Camp Co., Inc., 6958 S. State St., Chicago 21, Ill.*

### Perimeter Piping Systems

Form 600-A9 illustrates the advantages of three methods of hot water perimeter piping systems for classroom unit ventilators wall-mounted, cabinet-base and recessed edge. 8 pp. *Herman Nelson Unit Ventilator Products, American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.*

### Food Service Equipment Manual

A comprehensive manual of food service equipment presents interchangeable backbar, water coolers, cafeteria counters and kitchen equipment. *Progressive Metal Equipment, Inc., Rhawn St. at Whitaker Ave., Philadelphia 11, Pa.**

### Literature Requested

W. E. Weidemeyer, AIA, P.O. Box 60, Marathon, Fla.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Chicago, Illinois

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Mies Van Der Rohe
Pace Associates

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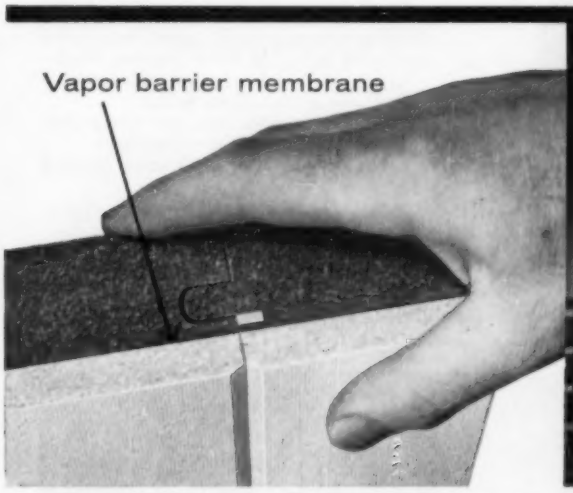
The Dykstra Annex is, of course, a maximum-economy design. Use of Insulite Roof Deck saved more than $300 on roof decking alone; eliminated all ceiling painting; permitted use of a lower-cost air conditioning system. Yet Insulite Roof Deck is widely used on the most de luxe types of construction, too—commercial and residential.

Would you like complete data on this relatively new, highly efficient decking-insulation-and-ceiling system? Write us—Insulite, Minneapolis 2, Minnesota.




***For any type of job; any climate*** . . . Insulite Roof Deck is made 1½", 2" and 3" thick, without vapor barrier; 2" and 3" thick with vapor barrier. No roof boards, insulation, lath or plaster needed. No painting, staining or other finish required on ceiling side.

***Office interiors*** in Dykstra Annex are given special character by sloping open-beam ceilings. Photo above shows a typical attractive, airy office, finished at modest expense. Beams are glued-laminated wood type, 3¼" x 11¼", 4' on centers. Maximum span here is 21 feet.

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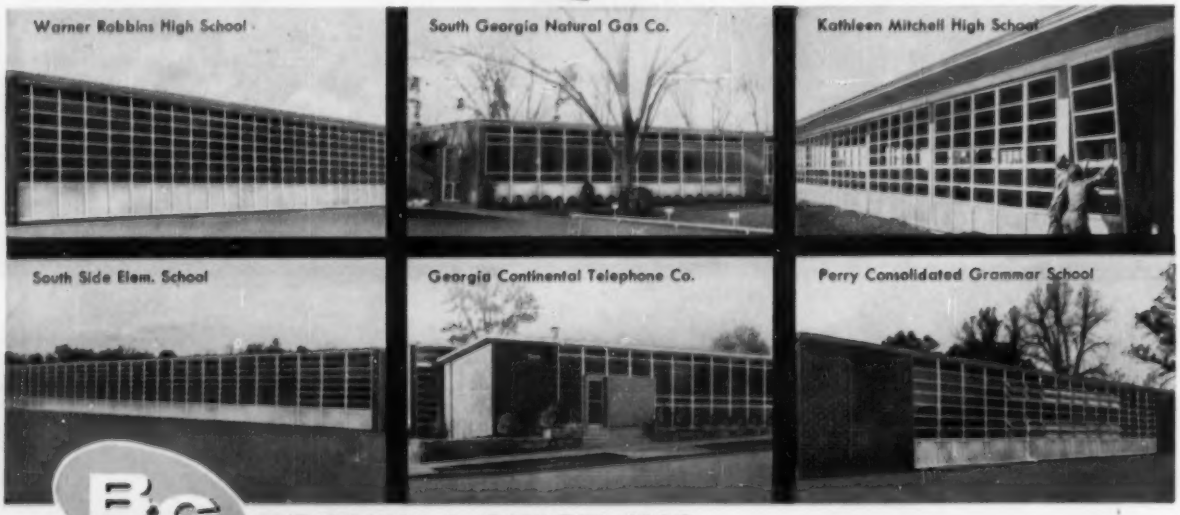
*Names of 15 prominent Georgia Architects using Brown & Grist Window Walls available on request from Industrial Equipment Company, Atlanta, B & G Representatives for Georgia.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## THE RECORD REPORTS

### ON THE CALENDAR

**December**

6–7 Modern Builders' Conference, sponsored by Armour Research Foundation of Illinois Institute of Technology as part of its 20th Anniversary observance — Chicago

**January**

20–24 Annual convention, National Association of Home Builders — Chicago

20–26 Session '57, "An exploration of contemporary architectural approaches and ideals," sponsored by the Alberta Association of Architects — Banff, Alta.

21–25 Winter general meeting, American Institute of Electrical Engineers — Hotel Statler, New York City

24–26 Annual meeting, Society of Architectural Historians, in conjunction with College Art Association — Institute of Fine Arts, Detroit

28–31 Plant Maintenance & Engineering Show, theme: "Good Maintenance or Bad — the Difference is Profit;" sponsored by Clapp & Poliak — Public Auditorium, Cleveland

**February**

16–21 National convention of the American Association of School Administrators — Atlantic City

18–22 Jackson convention, American Society of Civil Engineers — Hotel Heidelberg, Jackson, Miss.

23 One hundredth anniversary of the founding of the American Institute of Architects

25ff Annual meeting, American Society of Heating and Air-Conditioning Engineers; until March 1 — Chicago


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**Model No. 7X**
**Acid resisting enamel cast iron drinking fountain**
***Designed by* CHANNING WALLACE GILSON**
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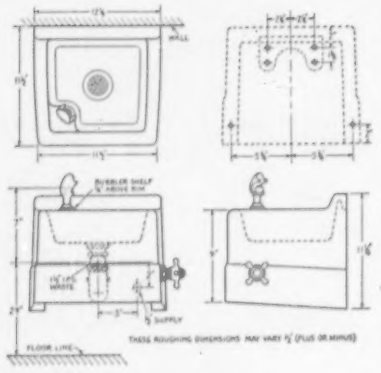

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### OFFICE NOTES

**Offices Opened**

• Chester Lee Craft, A.I.A., has opened an office for the practice of architecture at 1427 Ponce de Leon Blvd., Coral Gables, Fla.

• William L. Flippo, Architect, has established an office at 102 West Third Street, Alton, Ill.

• The architectural and engineering firm of Haas, Register, Cummings & Hutchinson was formed recently in Jacksonville, Fla. Their new office is located in the Haas Building, 115 Park St. Principals in the firm are J. Brooks Haas, Architect, George R. Register, Mechanical Engineer, Morris V. Cummings, Electrical Engineer, and James N. Hutchinson, Civil Engineer.

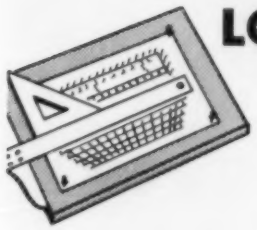
• Delp W. Johnson, A.I.A., has opened his own office for the practice of architecture at 166 Geary St., San Francisco, Calif.

• Gerard Joseph Oakley has inaugurated a firm for the practice of architecture which will be located at 41-K Howard Drive, Bergenfield, New Jersey.

• Donald P. Polsky, A.I.A., and Associates have opened offices for the practice of architecture at 1110 S. Robertson Blvd., Suite 4, Los Angeles, Calif.

• The office of Alfred Easton Poor, Architects, announces the opening of a

*(Continued on page 278)*



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Here is a building that is a citation winner in the Progressive Architecture Award Program. It has been described as an extraordinarily self-contained structure complete in every respect with a functional design as well as one of exceptional beauty.

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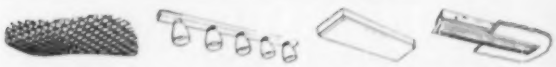

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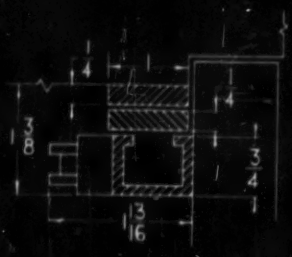

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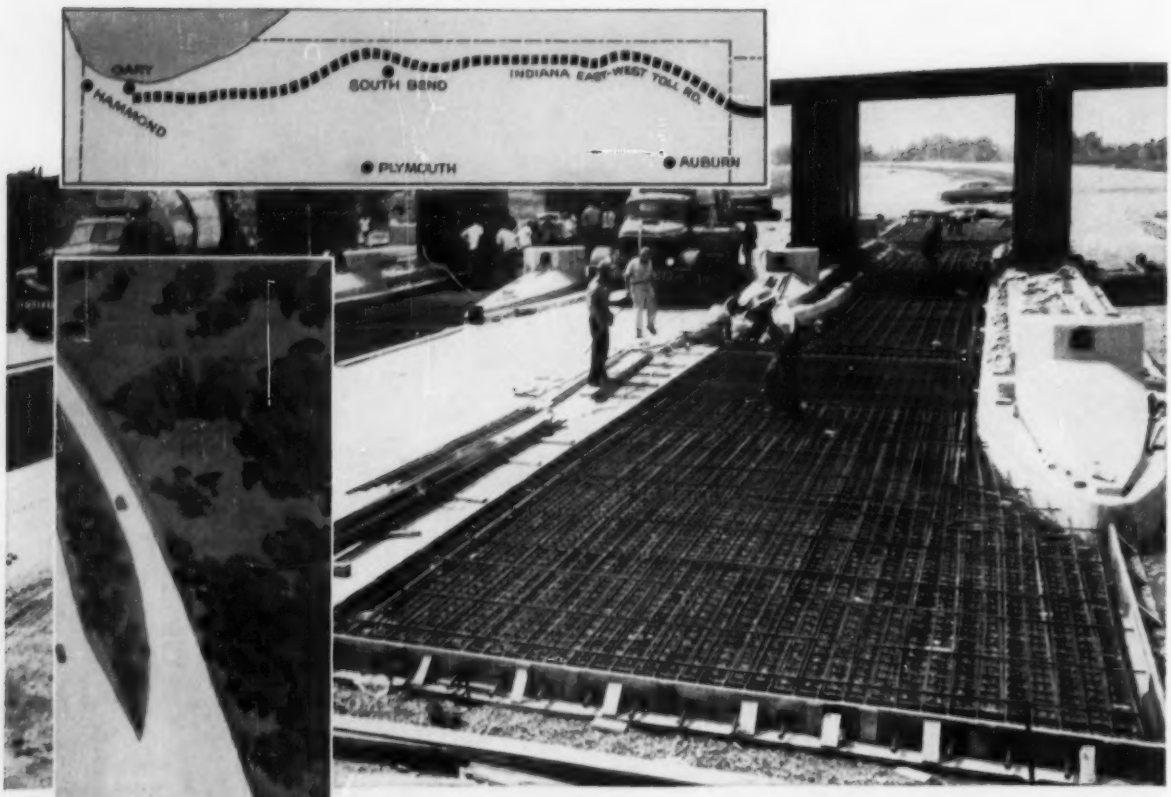
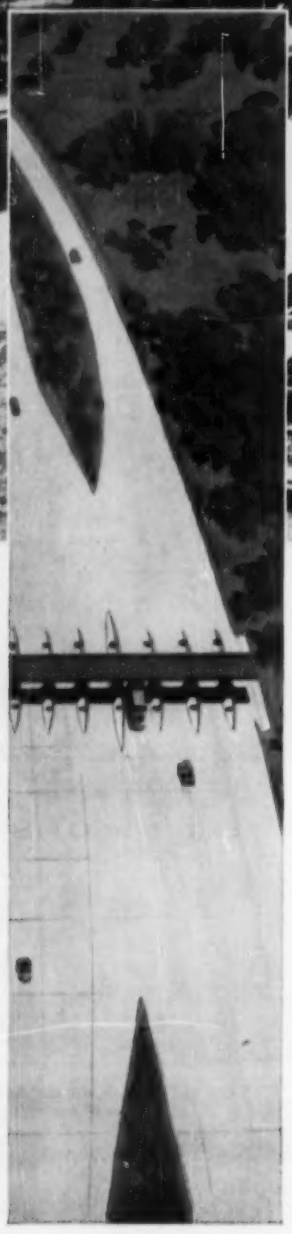
# NEW...Snow-and-Ice-Free Interchanges on Indiana's East-West Toll Road



## with Steel Pipe Snow Melting Systems

"Really *new* and *important*"... "an *innovation* in highway construction" ... are some of the things said about the Steel Pipe Snow Melting Systems installed at gates and interchanges on the recently opened Indiana East-West Toll Road. That they will add immeasurably to bad weather safety factors and increase the traffic handling capacities at these vital points of entry and exit is the opinion of highway engineers.

With the forthcoming expansion of the nation's highway systems, roadbuilders in the snow belt should give serious consideration to the advantages of automatic snow and ice melting in highway construction ... for interchanges, bridge floors, elevated ramp sections, over-passes, and other exposed road sections where conventional control methods may be both costly and inadequate.

For such installations, *Steel Pipe is first choice*, as in this Indiana road, the elevated approach to the New York Port of Authority bus terminal, the Staten Island Ferry Ramp, and many others. Yes, steel pipe is the most widely used pipe in the world, for snow melting, radiant heating, plumbing, fire sprinkler systems, power, steam, air transmission and electrical raceways.

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MICARTA® panels—alternating bright blue, black and grey—provide novel and dramatic wall treatment for this smart New York East Side residential building lobby, designed by Intramural, Inc.

The stripes of the panels are further emphasized by the hand-woven rug which reflects their colors.

This application is typical of the imaginative uses of versatile, durably beautiful MICARTA. This super-tough plastic surfacing never needs refinishing . . . wipes to a gleam with a damp cloth.

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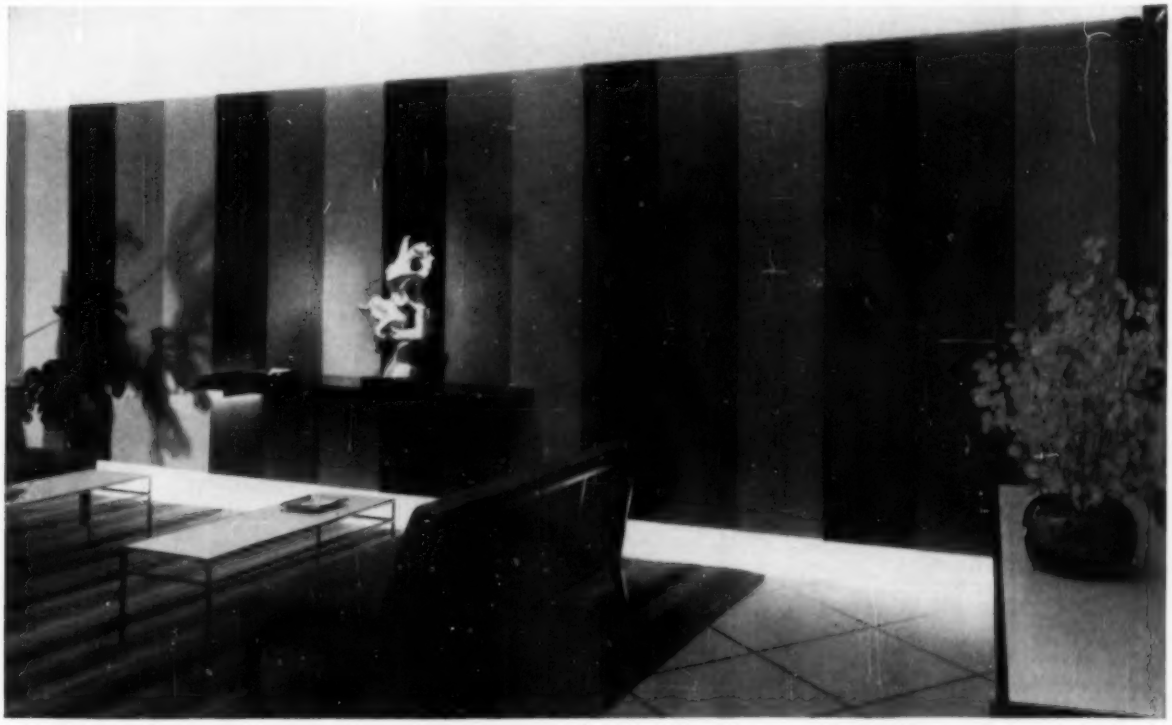
Residential lobby installation by Intramural, Inc.,
56 East 58th Street, New York, N. Y.



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## THE RECORD REPORTS

*(Continued from page 272)*

Washington office at 425 Thirteenth St., Washington, D. C.

**Firm Changes**

• Fayne F. Freshwater, Architect, and Leslie D. Harrison, Engineer, announce a change in their firm name to Freshwater and Harrison & Associates, Architects and Engineers. New associates in the firm are Alfred J. Friday, A.I.A., and Paul Snouffer, Architect. The firm address has also changed to 3763 North High St., Columbus, Ohio.

• R. L. Cardinell, engineer, recently joined the firm of Lewis S. Goodfriend, acoustical engineering, Harwood Bldg., Scarsdale, N. Y. Mr. Cardinell was formerly Chief Engineer of Magnetic Programs, Inc., Hoboken, New Jersey.

• Jensen & Mills, Architects, announce the promotion of Gordon W. Norris to an associate in the firm. Offices are at 308 S. Tacoma Ave., Tacoma, Wash.

• Kivett & Myers, Architects-Engineers, have added Angus McCallum, A.I.A., to the firm. New firm name will be Kivett and Myers and McCallum. Offices are at 1016 Baltimore Ave., Kansas City, Mo.

• McCrackin, Hiett and Dronberger is the new title of the firm McCrackin and Hiett, Architects and Engineers, following the admission of Dale Dronberger as a partner. The firm is located at 308 W. 20th St., Hutchinson, Kan.

• Meem, Zehner, Holien & Associates, Architects, announce the retirement of Hugh Zehner and the formation of a partnership for the practice of architecture by John G. Meem, Edward O. Holien, and William R. Buckley. The new firm, to be known as Meem, Holien, Buckley & Associates, Architects, will maintain offices in Santa Fe, N. Mex.

• The firm of Palmer and Baker, Inc., Consulting Engineers, announce with regret the resignation for reasons of health of Robert R. Baker.

• Pereira & Luckman, Los Angeles architectural and engineering firm, has appointed Leland King as Director of Architecture. Mr. King is former Director and Supervising Architect for the Department of State's overseas building activities.

• Shreve, Lamb and Harmon Associates, Architects, 11 E. 44th St., N. Y., announce that Stanhope Blunt Ficke and Harvey P. Clarkson have joined Arthur Loomis Harmon, Harold C. Bernhard and Howard F. Vanderbeck as partners in the firm.

• Richard George Wheeler & Associates, Architects, 3252 Rosecrans St., San Diego, Calif., recently appointed Tom Tucker, A.I.A., as chief architect with the firm.

**New Addresses**

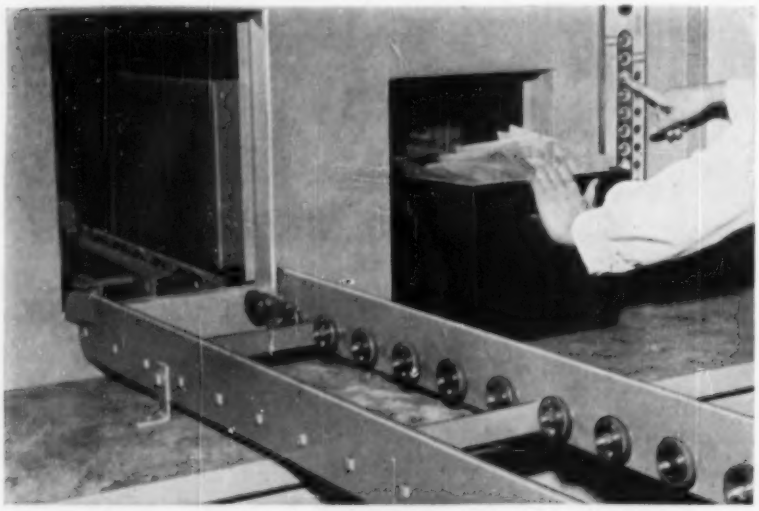
The Architects Collaborative, 63 Brattle St., Cambridge, Mass.

Gerald L. Bilbro, A.I.A., 525 E. Taylor St., Griffin, Ga.

William E. Brackett, Jr., A.I.A., Architect, 6 Hunter Bldg., Hendersonville, N. C.

Forest and Cotton, Consulting Engineers, 600 Vaughn Bldg., Dallas, Texas.

*(More news on page 316)*

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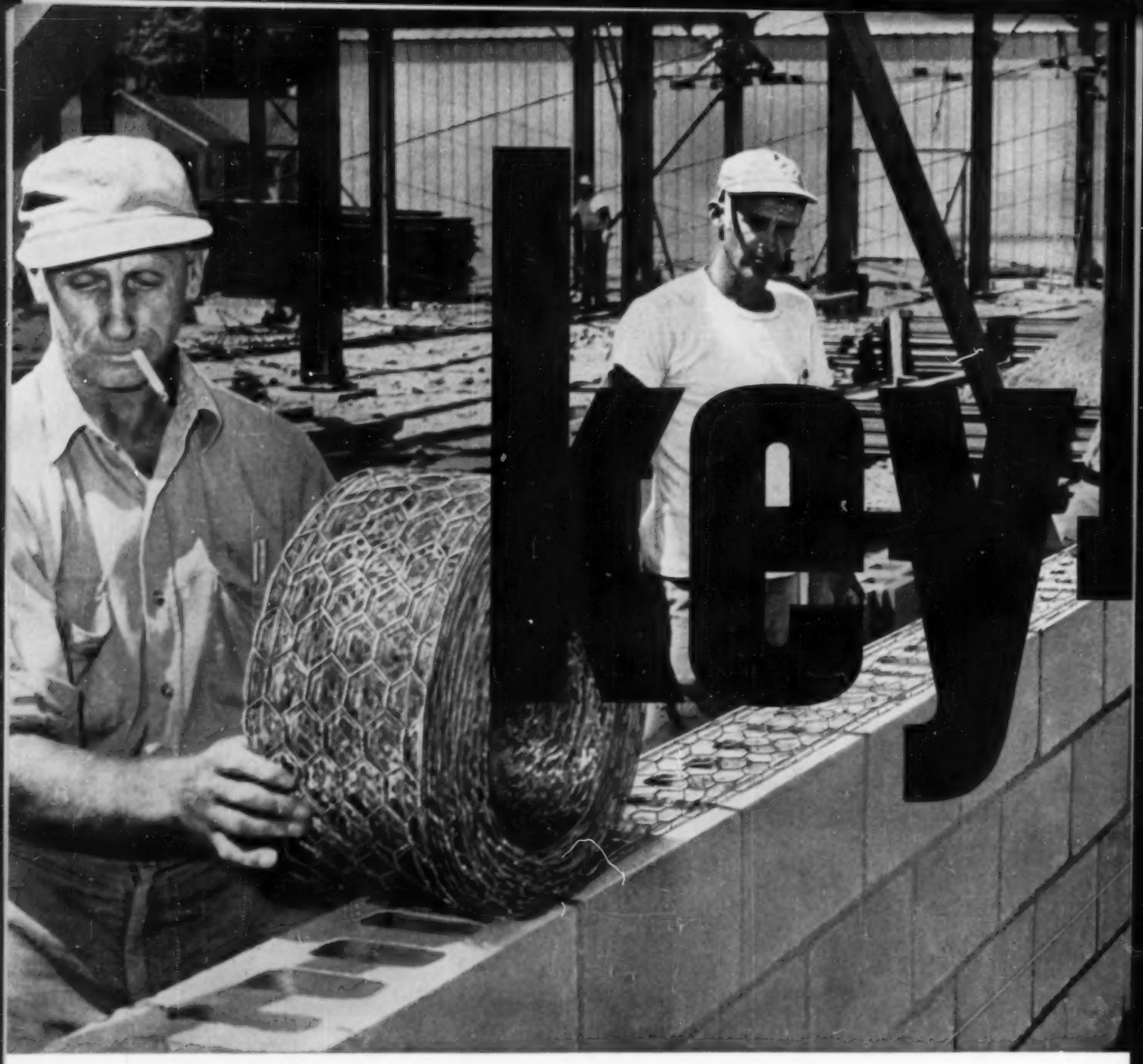

## Facts You Should Know About Masonry Reinforcement

*By Edwin L. Saxer: Professor and Chairman, Civil Engineering Department, University of Toledo*

For some time, there has been a growing tendency to rely on steel reinforcing in mortar joints to improve the capacity of masonry walls to resist the stresses which develop.

The usage of joint reinforcement has often proven unsuccessful in the past. The chief reason for this has been the failure to use reinforcement in more than every third or fourth joint—a practice which provides little or no benefit to the intermediate joints.

A contributing factor in many cases has been the inability of some forms of reinforcing to develop adequate bond strength.

As a result of research at the University of Toledo, and at other laboratories, the principles of effective joint reinforcement are now well understood. All indications point to the fact that reinforcement should be used in every joint, or at least in every other joint, to insure reasonable effectiveness.

Our research on the effectiveness of Key-Wall leads us to the following conclusions: (1) The design of Key-Wall results in a highly efficient distribution of steel. (2) The use of Key-Wall can reduce significantly the cracks resulting from shrinkage of the masonry; and (3) Key-Wall is effective in improving the lateral strength characteristics of masonry walls.

# why it pays to specify

# -wall

## the new type of masonry reinforcement that gives greater value at lower cost

The effectiveness of Key-Wall has been clearly demonstrated by tests at the Research Foundation, University of Toledo.

It's being specified and used by leading architects and builders today. It will offer you advantages on any jobs you build.

Key-Wall is made for the following wall thicknesses: 4", 6", 8", 10" and 12".

- Reduces shrinkage cracks
- Adds effective lateral strength
- It's galvanized to prevent rusting . . . assures maximum bond
- Lap joints give continuous reinforcement
- Does not interfere with bedding of units
- Improves mortar joint because multi-directional reinforcement holds mortar in place; gives better bond
- Masons welcome it, because it's easy to handle; easy to cut and fit; doesn't interfere with joint thickness
- You save on material cost, as well as labor cost

**FREE—SAMPLE AND TEST REPORT**

**KEYSTONE STEEL & WIRE COMPANY**
**PEORIA 7, ILL.**

Please send me free sample and copy of Key-Wall masonry report made by the Research Foundation, University of Toledo.

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# Glass MAKES EVERY STEP TO LEARNING SURER

## Skylights of Wire Glass Achieve Open Air Atmosphere in School Corridors and Rooms

A ceiling of sunshine floods the long corridor in Fox Point Elementary School, Providence, R. I., with bright, natural light to make it safer for hurrying youngsters. Mississippi Magnalite "B" Wire Glass, Approved Fire Retardant No. 32, employed in skylights, achieves broader, more uniform light distribution . . . eliminates shadows . . . creates a pleasant, open atmosphere that relieves the stark simplicity of the long hall.

Mississippi Glass makes every step to learning surer by providing better daylighting that protects precious young eyes against fatiguing glare in classrooms and laboratories. It provides a maximum of security against breakage and entry in doors, skylights, windows.

When you build or remodel, consider the many ways in which translucent, light diffusing glass can improve *your* school. Figured glass by Mississippi is available in a wide range of patterns and surface finishes all "visioneered" for better daylighting.

**Mississippi maintains an experimental school building on factory grounds for the study of daylighting. Take advantage of the company's wide experience. Our technicians are ready to help you with every daylighting problem.**

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Architects: Cull & Robinson

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☐ Please send name of representative.

## WASHINGTON TOPICS

*(Continued from page 48)*

tabulation of housing characteristics ever run in this country. The project was undertaken by the Bureau of Labor Statistics, Department of Labor, for the Producers' Council, Inc. This association of a number of the nation's leading manufacturers of building products raised $43,750 of the $48,000 contributed for the effort. Each contributor helped in developing the questionnaire used by the BLS in its survey of housing characteristics in all the 48 states and the District of Columbia.

The detailed results tell a great number of things about new housing that product manufacturers long have wanted to learn. But they will serve an even better purpose next year and in the other years ahead as similar data becomes available for comparison.

Producers' Council has announced its willingness to again sell various companies on the idea of participating and thus continue the BLS project.

Late last month the results were made known by BLS for the benefit of anyone wishing to study them.

In 42 tables, the Bureau listed detailed characteristics of these new first quarter houses by amounts and types. Subjects covered:

Sheathing, bricks, insulation material, wall materials (interior and exterior), floors and floor finishes, roofing, plywood, plumbing fixtures and pipes, heating equipment and fuels, water heaters, air conditioning, electric service, screening, number of homes with garages and carports, kitchen cabinets and other kitchen installations, window frames, number of windows, types of flankers used with picture windows, and doors (interior and exterior).

Also shown for the 244,300 privately owned non-farm dwelling units of all types surveyed are:

1. Floor area, number of bedrooms, and number of baths by type of structure and location.
2. Selected characteristics of new non-farm one-family houses by location.
3. Selected characteristics of new non-farm one-family houses started by selling price classes and location.
4. Equipment and appliances included in selling price of the one-family units, by location.
5. Equipment and appliances included in selling price of the one-family units by selling price classes and location.

The reports are necessarily based on sample data.

All the tables issued last month were preliminary, with revised data promised by the BLS within a few weeks.

Producers' Council pointed out that while the initial survey has only limited meaning for many of the participants, some of the firms have secured similar data in previous years and thus have a basis for valuable comparisons.

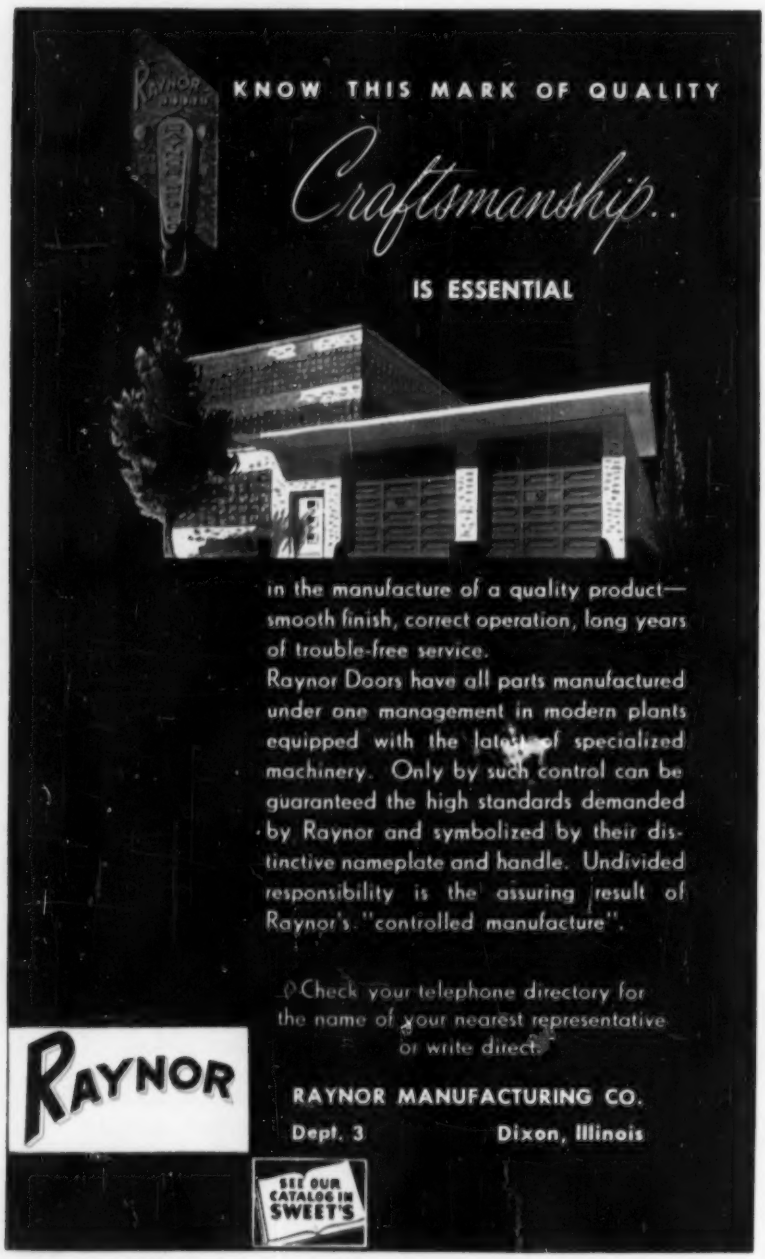
Thirty-five of the nation's leading building material producers contributed.

### MODULAR BUILDING COUNCIL PROPOSED FOR JULY 1 START

New life was again breathed into the modular measure movement recently when the joint committee of the American Institute of Architects and the Producers' Council, Inc., recommended a new type of organization, one that might function as a complete operating entity after next July 1.

The promotion of this method of uniform dimensioning has had its ups and downs in recent years. Effort has

*(Continued on page 290)*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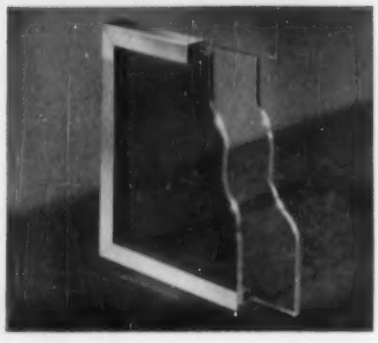
JUST ONE LINE CONTINUES TO SET THE PACE . . . IT'S **Brunswick**



**SOLEX-TWINDOW®** offers all the advantages of Twindow—the windowpane with insulation built in—plus a means for reducing the strong heat and brightness of intense sunlight. The sectional view here shows the composition of a Solex-Twindow unit. The outer pane is Solex Plate Glass, the inner light clear-vision Plate Glass. Between these two panes is a sealed-in air space. The entire unit is enclosed in a stainless steel frame which protects the seal and glass edges and makes handling safe and easy.

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# PITTSBURGH GLASS

# Lutheran Brotherhood's New Home Office Building in Minneapolis, Minnesota, features

# SOLEX-TWINDOW INSULATING GLASS

One of the Twin Cities' first completely modern, air-conditioned office buildings, the Lutheran Brotherhood Life Insurance Society home office building embodies advanced thinking in both community and employee facilities, as well as in architectural design and mechanical equipment. A feature of this building is its "curtain wall." For the vision areas in this "skin," *Pittsburgh's* Solex-Twindow Insulating Glass was selected. These units assure more comfortable interiors for the building's occupants, for they reduce solar heat and glare and keep offices cooler. Moreover, Solex-Twindow adds to operating economy, because less load is placed upon the air-conditioning system. Perkins & Will, Architects-Engineers, Chicago, Illinois, and White Plains, N. Y.

**THIS VIEW** of one of the departments of the New Lutheran Brotherhood building shows how the various offices gain visual spaciousness and bilateral daylighting through floor-to-ceiling partitions, glazed with Pittsburgh Polished Plate Glass.

**PRIVATE AND SEMI-PRIVATE** offices in this building acquire well-distributed daylighting through partitions glazed with Pittsburgh Polished Plate Glass.

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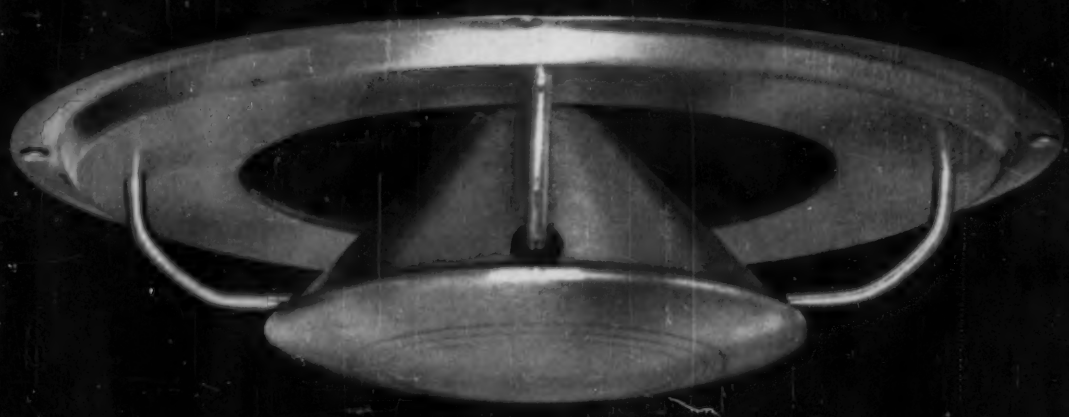

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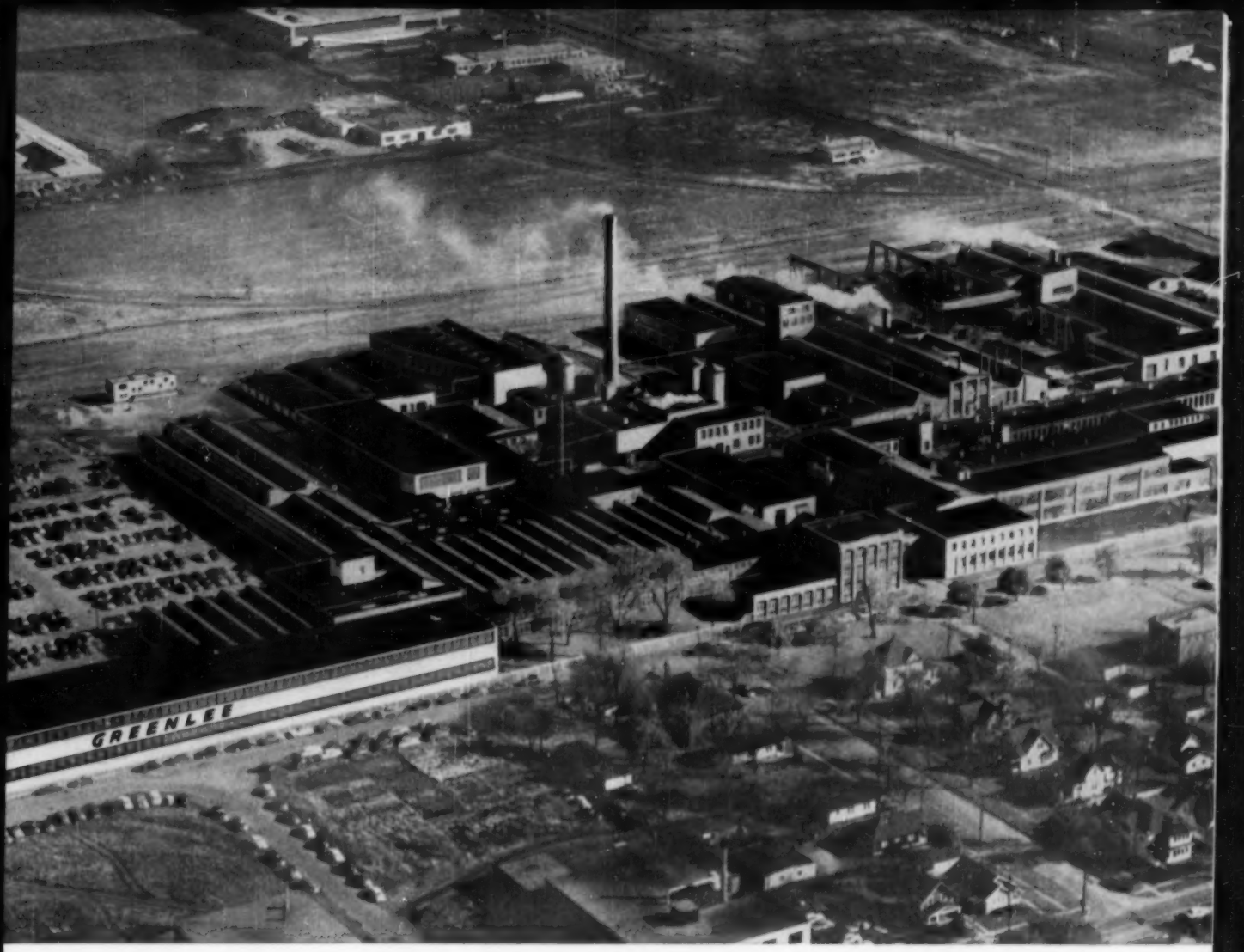



# Greenlee cuts steam costs 18%-20% burning coal the modern way

## Consult an engineering firm

Designing and building hundreds of heating and power installations a year, qualified engineering firms can bring you the latest knowledge of fuel costs and equipment. If you are planning the construction of new heating or power facilities—or the remodeling of an existing installation—one of these concerns will work closely with your own engineering department to effect substantial savings not only in efficiency but in fuel economy over the years.

## *facts* you should know about coal

In most industrial areas, bituminous coal is the lowest-cost fuel available • Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar • Automatic coal and ash handling systems can cut your labor cost to a minimum. Coal is the safest fuel to store and use • No smoke or dust problems when coal is burned with modern equipment • Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

Expanding facilities at Greenlee Bros. & Company, Rockford, Illinois, created a problem common to many growing firms. The Company's three old boilers had to operate continually at maximum capacity, so that a forced outage could hurt plant production. In addition, peak load operation with outmoded equipment resulted in high fuel costs.

While the newest boiler was retained, Greenlee replaced the other two with modern high-capacity units, including stokers, up-to-date controls and other equipment for more efficient operation. A new, pneumatic ash handling system was installed. Today Greenlee is getting 10%-20% more steam for each pound of coal burned and steam costs are down 18%-20%, saving Greenlee thousands of dollars every year.

*For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.*

BITUMINOUS COAL INSTITUTE

Southern Building • Washington 5, D. C.

## THE RECORD REPORTS

## WASHINGTON TOPICS

*(Continued from page 284)*

been concentrated mainly on educating architects and contractors in its benefits.

Now industry leaders feel the time has come to put modular measure in a position where new standards can be recommended and a staff operation can be created to give greater depth of meaning to the modular coordination system.

As a starter, the joint committee has suggested that the period between now and next July first be one of organization. After that date, a new organization — a Modular Building Council — could carry on with considerably more formality than the movement has enjoyed up to this time.

The groundwork for such an organization was discussed thoroughly at the A.I.A.-P.C. committee session. Organization, council structure, dues and operation were considered. Each of the four organizing sponsors — A.I.A., P.C., Associated General Contractors of America, Inc., and the National Association of Home Builders — is being asked to name a representative (not of staff level) to serve as a member of an organizing committee which would elect its own chairman. It is suggested further that each of these trade groups contribute partial time of a staff worker to go into promotional and organization efforts as decided by the committee.

Within such a framework, the committee could set up a program for solicitation of membership, at the same time serving as the "caretaker" of the present modular measure nucleus.

It is also proposed that the Modular Building Council incorporate as a nonprofit membership corporation with headquarters in the District of Columbia. Such a council would have all the attributes of an organization of this kind including a board of directors of eight or more members. The first annual meeting and election of officers might be held in the fall of 1957, according to the tentative proposals.

As now suggested, all members of the council would have one vote each except that student affiliates would have no vote. These different types of membership are under consideration:

1. Architectural and engineering students.
2. Individuals working in the construction industry.
3. Producers of materials and equipment.
4. Contractor and building firms.
5. Trade association executives.
6. Architectural and engineering firms.
7. Organizing sponsor members.
8. Sustaining members: patrons, publications, and any other interested parties.

A dues structure for these various membership types will have to be devised.

### TALLAMY TO BE NAMED TO TOP U. S. HIGHWAY POST

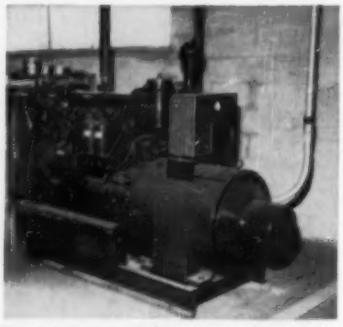
The White House last month announced the temporary appointment of a general contractor, John A. Volpe, Malden, Mass., to serve as the new Federal Highway Administrator until the name of Bertram D. Tallamy, chairman of the New York State Thruway Authority, can be placed in nomination for the post in January. Mr. Tallamy, the President's choice to fill the new position permanently, could not take over the task until after the first of the year, it was reported.

*(Continued on page 296)*


"We've Stopped Worrying About Losses Due to Electric Power Failure"

Reports George R. Churchill Co., Hingham, Mass.

One bad experience was enough for this busy manufacturer of buffing wheels. A week-long power failure caused by a hurricane led to the installation of a Ready-Power Standby Electric Plant big enough to operate all machinery. Full time production is now assured during power emergencies. The wide range of Ready-Power models can meet your requirements, too. Write for information.



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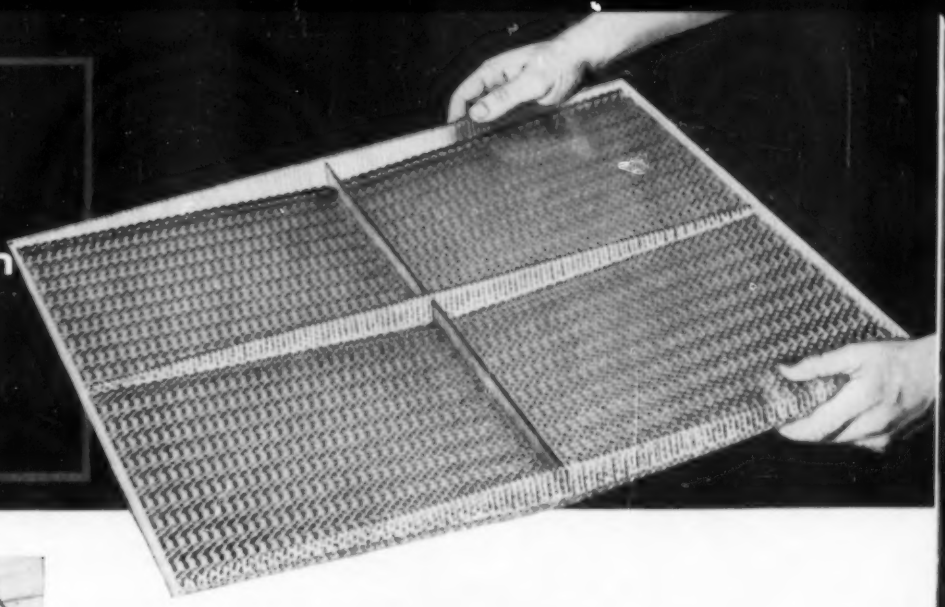
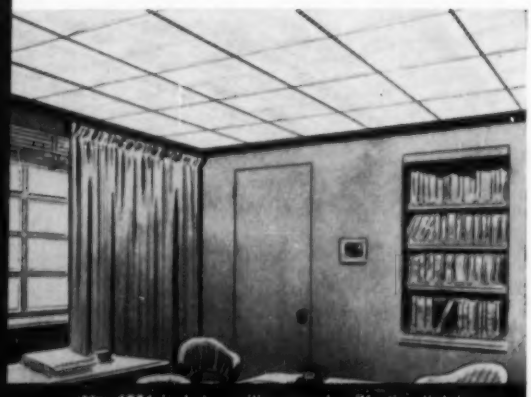
ARCHITECTS: For complete information on electric plants, refer to Ready-Power Specification Pages in Sweet's Architectural File. Write for Bulletin 279-2.

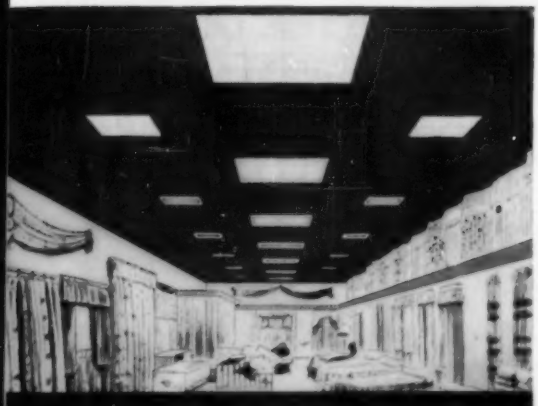
# HOLOPHANE ENGINEERS Break Through the GLARE BARRIER...





No. 6024 in large ceiling panels; effective lighting for executive offices.

In 2-foot-wide troffers; emphasizing spaciousness of the bank interior.



Small and large panels in the store ceiling; excellent illumination for seeing and selling.

## Prismalume* Controlens* No. 6024 Introduces New Concepts in Fluorescent Light Control

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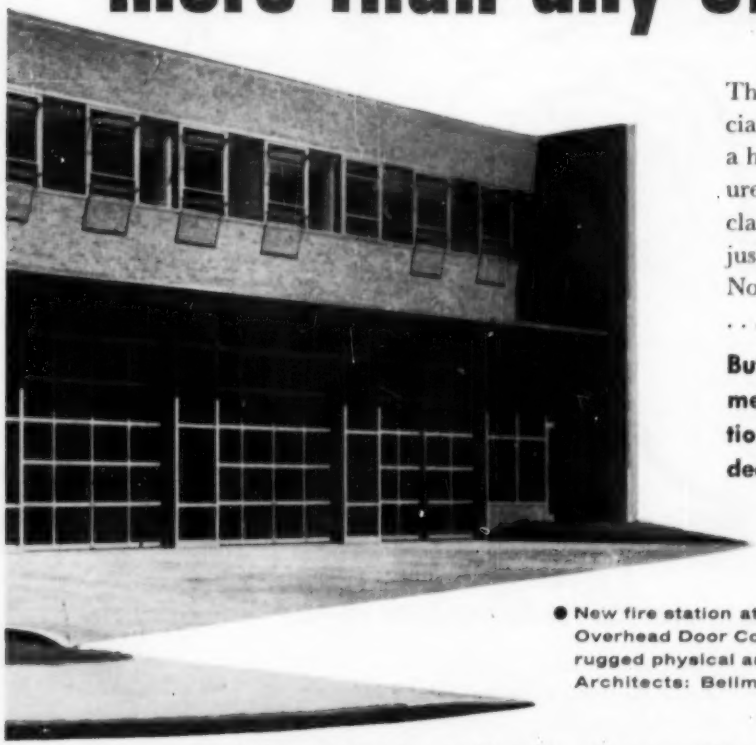

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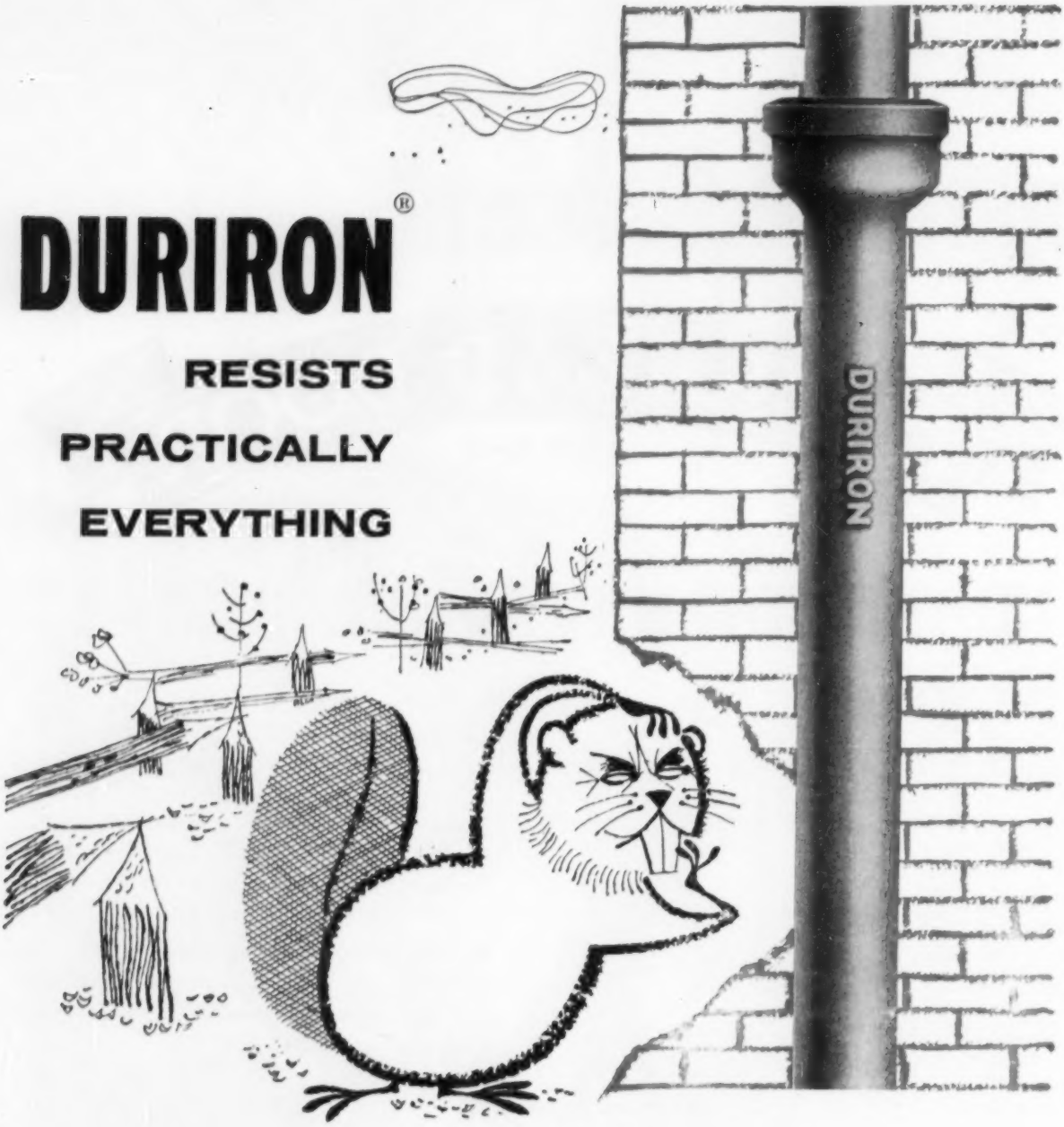


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Duriron is installed by ordinary plumbing methods, and is carried in stock by leading wholesalers, everywhere. Specify Duriron. Insist on Duriron.

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**plus** lifetime protection against Termites and Decay

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Wolmanized lumber is used just as any untreated lumber. The difference is in results. Wolmanized lumber gives positive protection against termite and rot damage; it is clean, paintable, non-corrosive, glueable.

And because Wolmanized lumber has built-in protection from decay it should be specified where these conditions exist: process moisture, condensation, high humidity, water contact.

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The remodeled gymnasium of the Army Chemical Center, Edgewater, Maryland, is typical of the practical use for Wolmanized lumber. The gym's rotted, wartime sub-flooring was replaced with Wolmanized lumber to provide solid, even support for 30 years or more.

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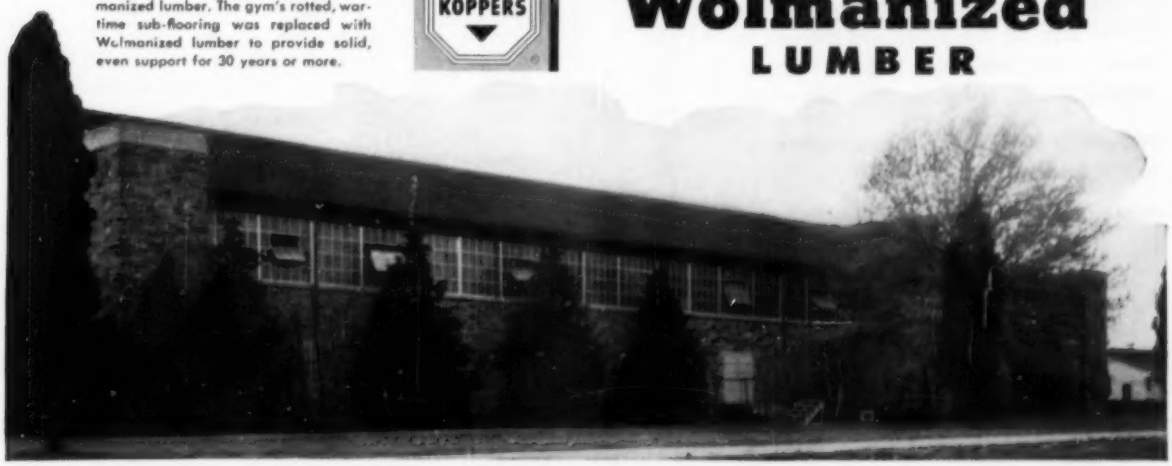


## THE RECORD REPORTS

## WASHINGTON TOPICS

*(Continued from page 290)*

Congress established the new job after it approved legislation calling for the largest public works program in history — the $50 billion highway expansion to be carried out during the next decade. The Federal Highway Administrator will have primary responsibility for the 41,000 miles of the interstate system, a network of high priority roads of modern design to serve civilian and defense needs alike. He will answer directly to the Secretary of Commerce.

### PHS GETS CLOSER TO MAKING POLLUTION CONTROL GRANTS

The Public Health Service revised its original list of communities eligible for construction grants under the Water Pollution Control law and came up with 10,000 in the approved category. This just about doubled the 1952 number and gave new indication of the importance of this half-billion dollar venture.

Not all of these 10,000 localities will receive aid, since applications are considered only from those that have developed comprehensive water pollution control programs — but legally all of them are entitled to assistance.

Final criteria on handling the allocations was in the hands of the Bureau of the Budget and approval there was to put the new program close to operation. PHS can begin to allocate the $50 million appropriated for fiscal 1957 with approval of criteria and the application forms.

In spite of little promotion of the program, local interest is running high, PHS reports. More than 4000 copies of preliminary information have been sent to states and municipalities. Federal grants are limited to 30 per cent of the cost of the project, and Congress set a top limit of $250,000 for any one job. The agency has been authorized to spend $50 million each year for the next 10 years in the water pollution control field.

The inadequacy of much rural and fringe area sanitation is giving concern to plumbing contractors and government officials. The National Association of Plumbing Contractors and the U. S. Public Health Service have launched a cooperative effort to look more closely at plumbing conditions in these areas. They are pretty well convinced that shortage of funds is the primary cause of sub-standard conditions but will explore all phases in an effort to determine the approach to be made. The N.A.P.C. initiated the movement with a resolution at its annual convention in Milwaukee. This called upon Federal and state health departments to take a more active part in improving rural sanitation. It cited a 1950 housing census report showing large numbers of rural and fringe areas without even mimimum plumbing and heating facilities.

### STATES HAVE U. S. FORMS FOR SEWAGE FACILITIES AID

Application forms for Federal grants to help in the construction of sewage treatment facilities have finally reached the hands of state water pollution control agencies. They are being distributed to interested municipalities and signal a major forward step in the $150 million three-year Federal aid program.

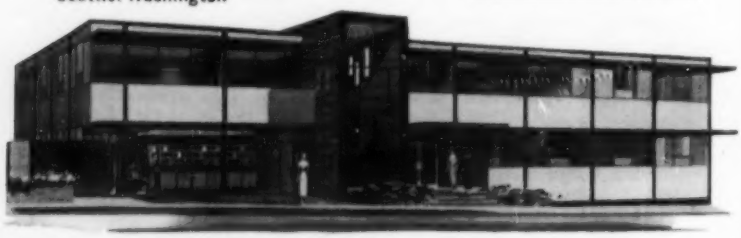
Congress appropriated $50 million for use this fiscal year, but operation of the program was delayed while the Bureau of the Budget approved the application forms submitted by the U. S. Public Health Service. Criteria for determining

*(Continued on page 302)*


Mo-Sai

THE MODERN CURTAIN WALL

• Office Building, Washington Conference of Seventh Day Adventists
Architect: Robert J. Burman
Mo-Sai by Olympian Stone Co., Seattle, Washington



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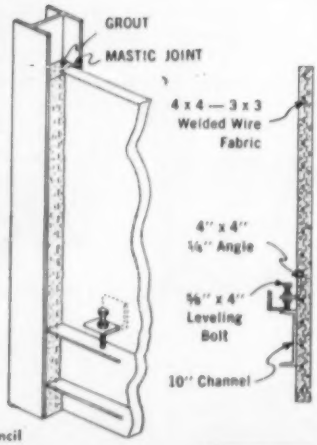
In the illustration, all Mo-Sai panels were installed in three days, set directly into and spanning between 12' steel frame bents. Sash was flashed directly into panels through use of flashing reglets.

Your nearby Mo-Sai Associate Manufacturer will be glad to submit complete details.

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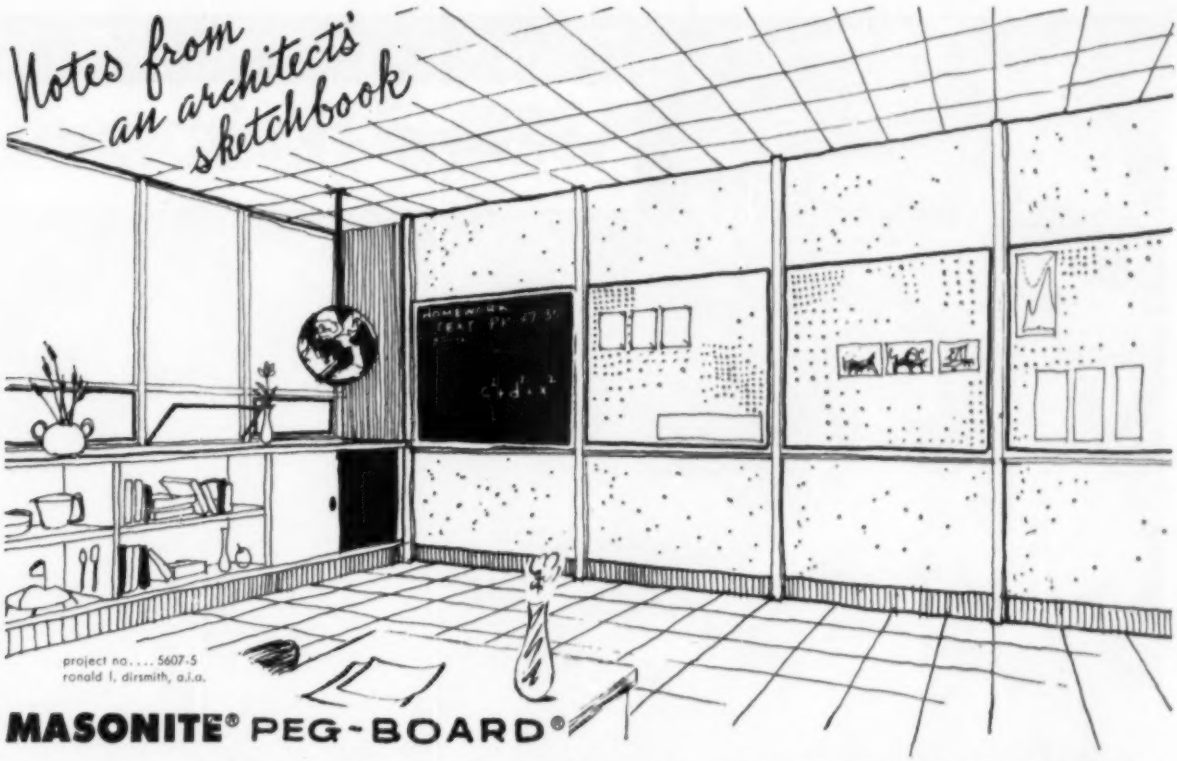
SWEET'S FILE 4d/Mo

*Notes from an architect's sketchbook*

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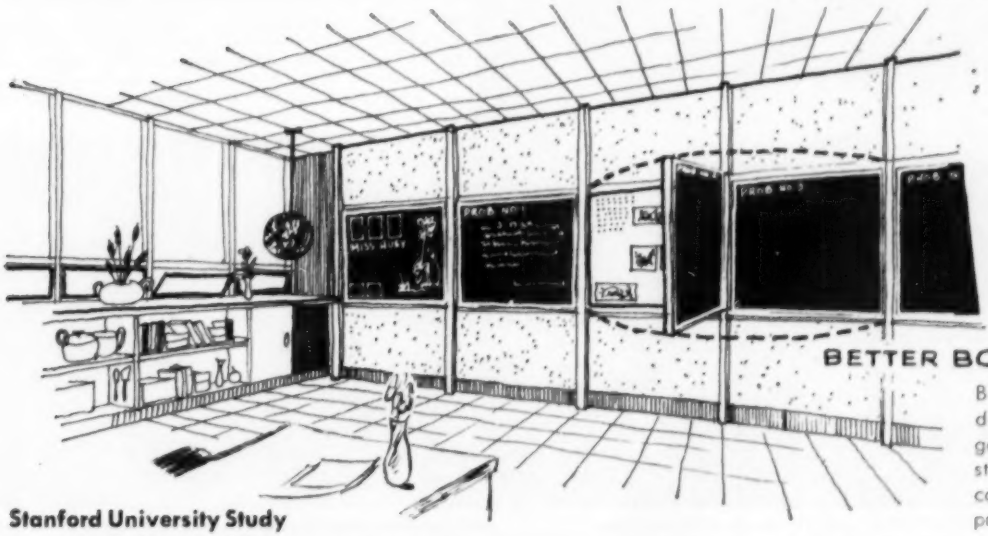

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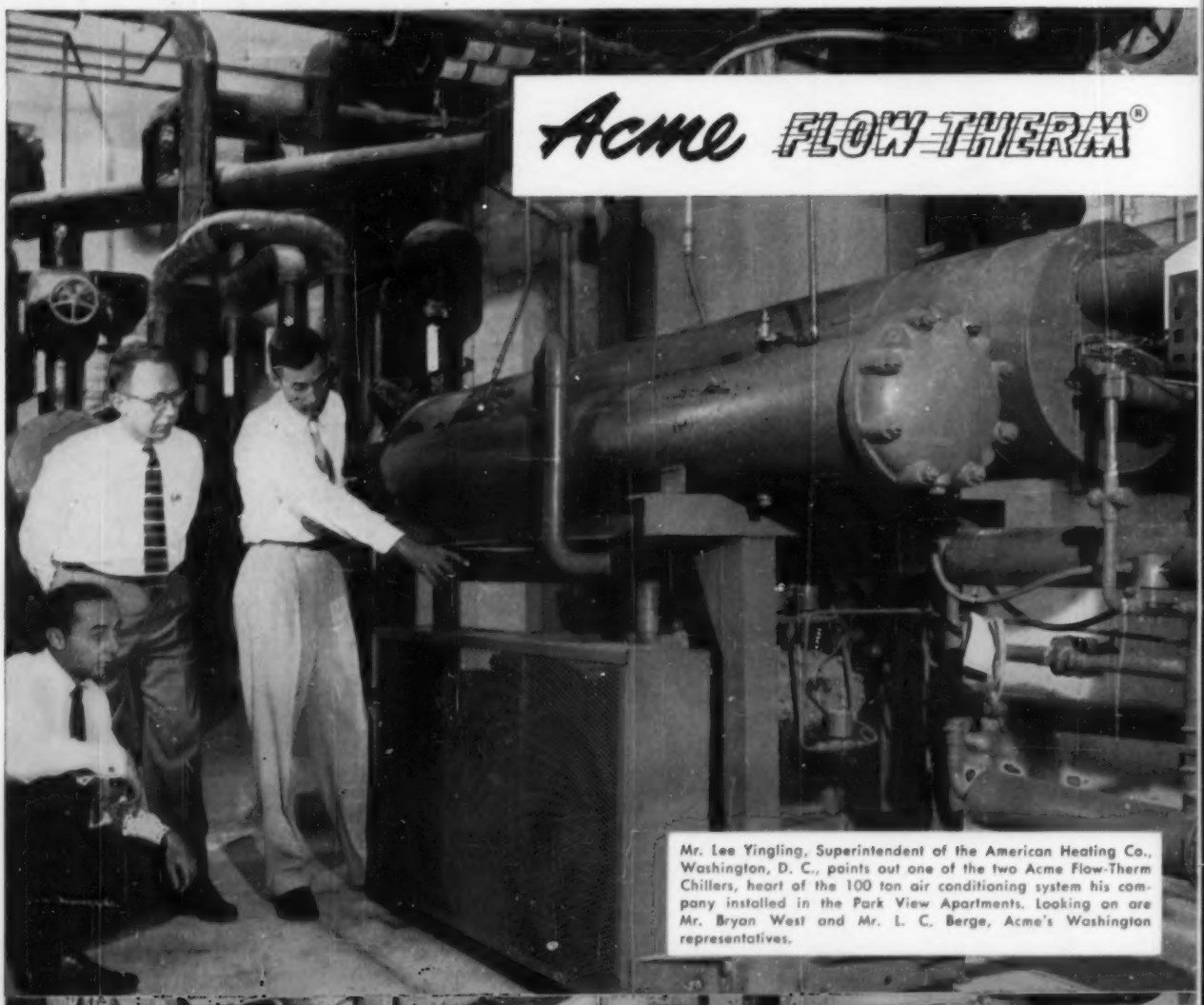
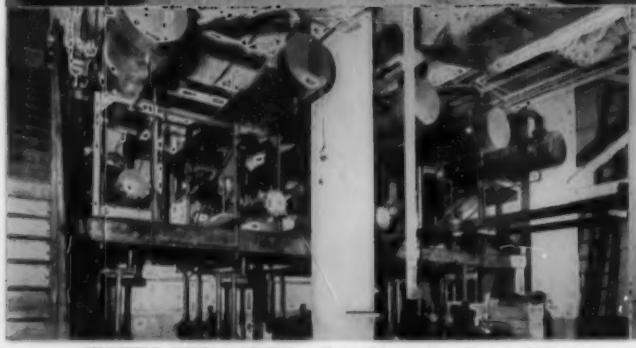
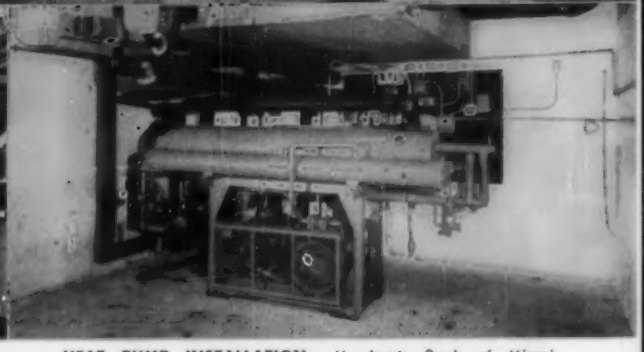
# Acme FLOW-THERM®



Mr. Lee Yingling, Superintendent of the American Heating Co., Washington, D. C., points out one of the two Acme Flow-Therm Chillers, heart of the 100 ton air conditioning system his company installed in the Park View Apartments. Looking on are Mr. Bryan West and Mr. L. C. Berge, Acme's Washington representatives.



**MULTIPLE INSTALLATION** — Five 100 HP Flow-Therm Chillers provide the Merchants Bank Building, Indianapolis, Indiana, with 500 tons of air conditioning. This system was engineered and installed under the supervision of Mr. John Beaulieu, Illingsworth Construction and Engineering Co., Indianapolis.



**HEAT PUMP INSTALLATION** — Merchants Bank of Miami, Florida, utilizes this 30 ton Flow-Therm Heat Pump for year-round heating and air conditioning. The system was engineered and installed by F. H. McDonald, Inc., in cooperation with Norman M. Giller and Associates, Architects.

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## Acme INDUSTRIES INC., Jackson, Michigan

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## Park View Apartments look to Acme for air conditioning comfort that sells

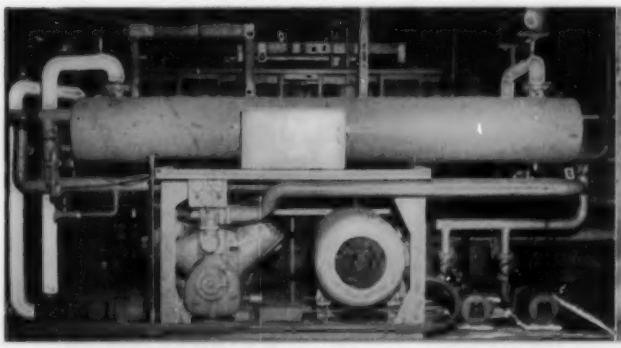
To insure the continuing popularity of their new Park View Apartments, Washington, D.C., Dan Pollin, Inc. insisted on having the most reliable air conditioning system possible. General Engineering Associates, consulting engineers for architects Berla and Abel, specified Acme . . . and with good reason. They wanted a system that would deliver full capacity for peak loads throughout Washington's long air conditioning season – they wanted a packaged chiller with proven dependability, one that was compact and economical to install. They knew an Acme Flow-Therm qualified in every respect.

With Acme you get a more complete range of models, with capacities to fit exact job requirements. This is possible because the Flow-Therm's chief components, famous Dry-Ex Chiller and Shell-and-Tube Condenser, can be tailor-made to match compressor performance exactly – combine operating economy with maximum capacity. The Flow-Therm is the most completely engineered packaged unit in its capacity range. All controls – electrical and mechanical — are supplied complete and ready for simple installation. When you buy an Acme Flow-Therm Packaged Chiller, it arrives on the job completely assembled, ready for connection to power and liquid lines.

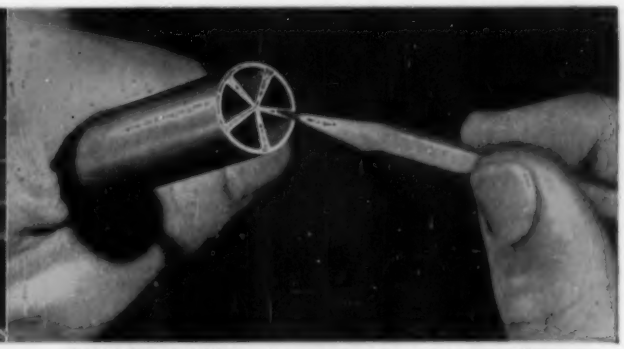
In addition to the normal factory tests for leaks and mechanical defects, all Acme packaged chillers are tested under full load conditions before leaving the factory. Every unit must perform satisfactorily at its nominal rating. Your guarantee of this tested operation is the new Acme Certificate of Performance, first in the industry. This assures the engineer and contractor, who specify and install Acme equipment, that Acme means *dependability*.

Acme Certificate of Performance issued on all Flow-Therm and Flow-Cold packaged liquid chillers, 3 through 150 tons.

**PROVEN FLEXIBILITY** – Acme Flow-Therm Packaged Chillers have been proven in varied types of installations throughout the country. They have met all air conditioning, heat pump, and industrial processing requirements. Flow-Therm chillers are available in models complete with compressor, in a range from 20 through 150 tons – up to 300 tons for installations requiring remote compressors.



**PROCESS COOLING INSTALLATION** — This 100-ton Flow-Therm Packaged Chiller and a Dry-Ex fluid-to-fluid Heat Exchanger is cooling Zinc Cyanide Plating solution at Ford Motor Company's Sandusky, Ohio plant. Installation was handled by Udylite Corporation under the supervision of J. K. Rawsthorne, Sales Engineer for J. Geo. Fischer & Sons, Detroit, Mich.



**EXCLUSIVE FEATURE** — Key component of the Acme Flow-Therm — the Dry-Ex chiller — contains STAR-INSERT TUBING, an exclusive design that more than doubles the heat transfer surfaces . . . gives more chilling capacity.

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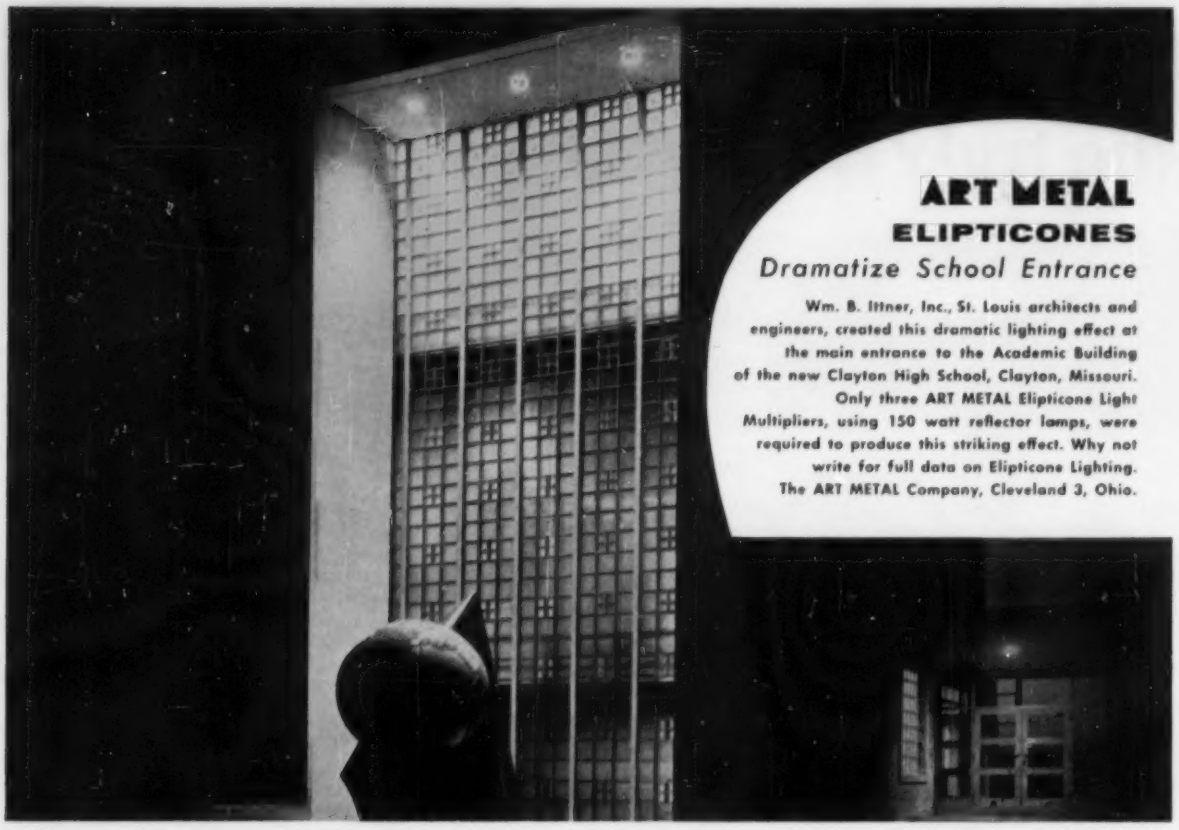

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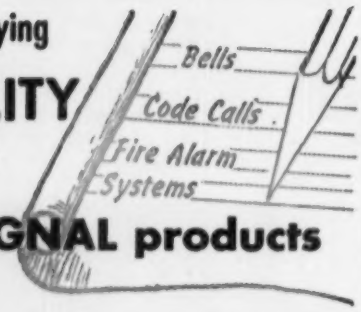

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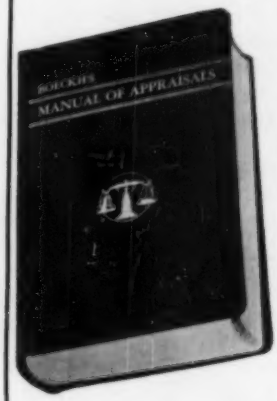


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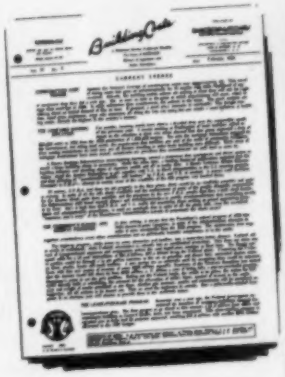

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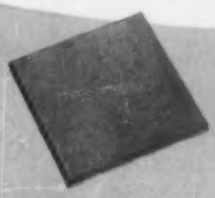

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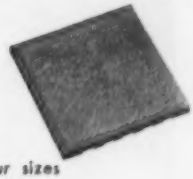
Now available in six beautiful colors. Summitville Quarry Tile is unsurpassed for richness of color and superior chemical, structural and mechanical qualities. No other flooring is so durable and easily maintained.

GLAZED Quarry Tile



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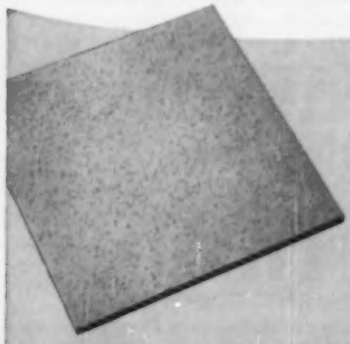

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## WASHINGTON TOPICS

*(Continued from page 296)*

the propriety of Federal aid also had to be established according to the Congressional history of the new legislation.

Under terms of the law, individual grants are limited to $250,000 or 30 per cent of the cost of the project, whichever is less.

Municipalities now will fill in these applications and submit them to state water and pollution control agencies for approval. Eligible projects must conform with any state water pollution control plan. They must be certified by the agency as entitled to priority over other eligible projects on the basis of financial as well as pollution control need.

Here are the PHS criteria that will be used in considering the propriety of Federal aid for these projects:

1. Is the project required to control pollution of interstate waters, coastal waters, or waters of the Great Lakes (including tributaries of such waters contributing materially to the pollution of such waters), and is such pollution inimical to public water supplies, propagation of fish and aquatic life and wild life, recreational purposes, or agricultural, industrial or other legitimate water use?

2. Is the project required to control pollution in meeting international treaty obligations or agreements?

3. Does the project involve a pollution problem substantially and adversely affected by (a) Federal installations, (b) water use requirements, (c) Federal water resource development, or (d) influx of population to carry out Federal activities?

4. Does the project involve treatment works required to abate a serious public health hazard?

5. Can the municipality demonstrate that construction of the needed sewage treatment works involves an extraordinary and excessive financial burden in relation to its economic resources?

### CAA WATCHING FOR TRENDS IN AIRPORT ABANDONMENTS

The Civil Aeronautics Administration reveals that it is watching closely the abandonment of airports in the United States, not yet with real concern for a dangerous reduction in airport space but with a sharp eye for trends.

Recent CAA surveys indicate what appears to be more than a normal number of airport abandonments. The reasons for giving up airports have been varied; CAA has noted fields being sold for housing developments, for shopping centers and for industrial purposes. Many have been disposed of in the vicinity of large cities where suburban developments have reached out beyond city limits into the areas where airports normally are located.

Remarked James T. Pyle, acting administrator of CAA: "While no obvious trend has developed, we cannot afford to lose too many airports without the effects being felt throughout the entire aviation industry. We do not know if we are going to have a full-scale problem in connection with airport abandonments, but we intend to keep in touch with developments."

### URGE ACTION ON ABUSES IN RETAINED PERCENTAGES

The nation's architects should take the lead in correcting "flagrant abuses" of percentage retentions on construction contracts, in the opinion of electrical contractors. These specialty subcon-

*(Continued on page 308)*

BRITTANY JR. HIGH SCHOOL, University City, Mo.
Mrs. Muriel B. Hallowell, Dir., School Cafeterias  Architect—Wm. B. Ittner, Inc.

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Thousands of Bethlehem High-Strength Bolts were used to join structural members in framework for new Prudential office building in Jacksonville, Fla. *Architects:* Kemp, Bunch and Jackson. *Contractor:* Daniel Construction Company of Alabama. *Fabricator and Erector:* Ingalls Iron Works Company.

# High-Strength Bolting Speeded Erection of New Office Building in Jacksonville

This handsome building encased in marble, limestone and pink granite is the South-Central headquarters of The Prudential Insurance Company of America, at Jacksonville, Fla. The 22-story structure has a steel framework of 5,893 tons, held together with thousands of Bethlehem High-Strength Bolts. This method of construction saved erection time, as the bolting was completed within a week after the last piece of steel was set.

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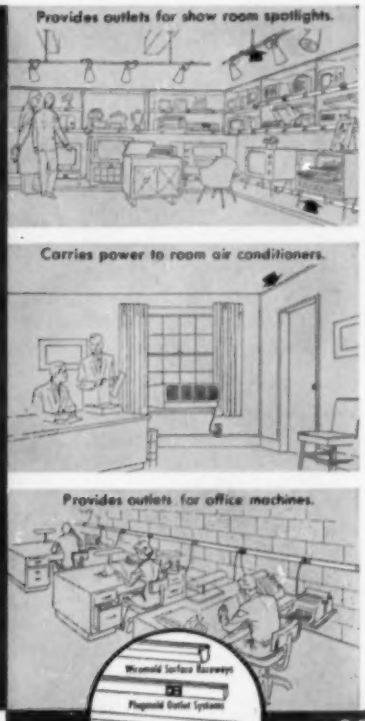
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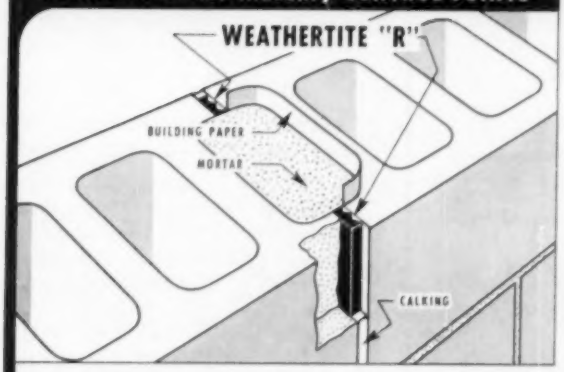


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## WASHINGTON TOPICS

*(Continued from page 302)*

tractors feel that the question of large retained percentages, long a vexing problem to them and to material producers, should receive fresh attention and they say the architects are the ones to give the boost.

These opinions were stated in a resolution passed at the 55th anniversary convention of the National Electrical Contractors Association held this fall in San Francisco, which read in part:

"Unfortunately no forthright corrective action has been taken by any branch of the industry, including the architects, whose most recent statement on the subject holds little promise of results. Meanwhile, the abuses have multiplied and, indeed, complaints are increasing, particularly on incidents that appear to have been initiated or are at least controllable by the general contractor. By this device unscrupulous general contractors obtain the use of subcontractor capital to finance their jobs, thus aiding and perpetuating the broker type unscrupulous general contractor of questionable financial capacity and integrity."

The N.E.C.A. feels so strongly on the subject that it is studying the feasibility of supporting national legislation requiring mandatory payments to subcontractors on national, state and local public works when their respective contracts have been completed.

### NSPE WANTS MORE ENGINEERS WITHOUT U. S. INVOLVEMENT

The current and prospective shortage of engineers long has caused concern among the professional societies. At its fall meeting at White Sulphur Springs, W. Va., the National Society of Professional Engineers went on record endorsing steps to encourage students in the upper 25 per cent of their high school classes to attend college.

This mild expression was as far as N.S.P.E. would go on the subject, and it declared that education preparatory to the collegiate level should remain strictly a matter for local government. It did, however, support moves to provide better instruction, particularly in the fields of mathematics and science, as well as development and expansion of the educational programs of technical institutes where the courses are at the post-high school level. Financial support through Federal funds for students below the baccalaureaute level was opposed.

### EXPECT RENEWED PLUG FOR DEPARTMENT OF URBICULTURE

The drive by Congressman Younger (Calif.) to establish a "Department of Urbiculture" within the Federal government probably will be renewed with convening of the 85th Congress next year.

Representative Younger has held that the government should supervise more closely such urban problems as slum clearance, smog, inadequate local transportation problems, the planning of orderly city growth, traffic, teen-age crime, etc. This can best be done, he maintains, through a Department of Urbiculture similar in Federal status to the Department of Agriculture.

Mr. Younger and his supporters feel that with the tremendous growth of cities in recent years not enough attention is being paid to some of the problems generated by this expansion.


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***by the editors of* ARCHITECTURAL RECORD**

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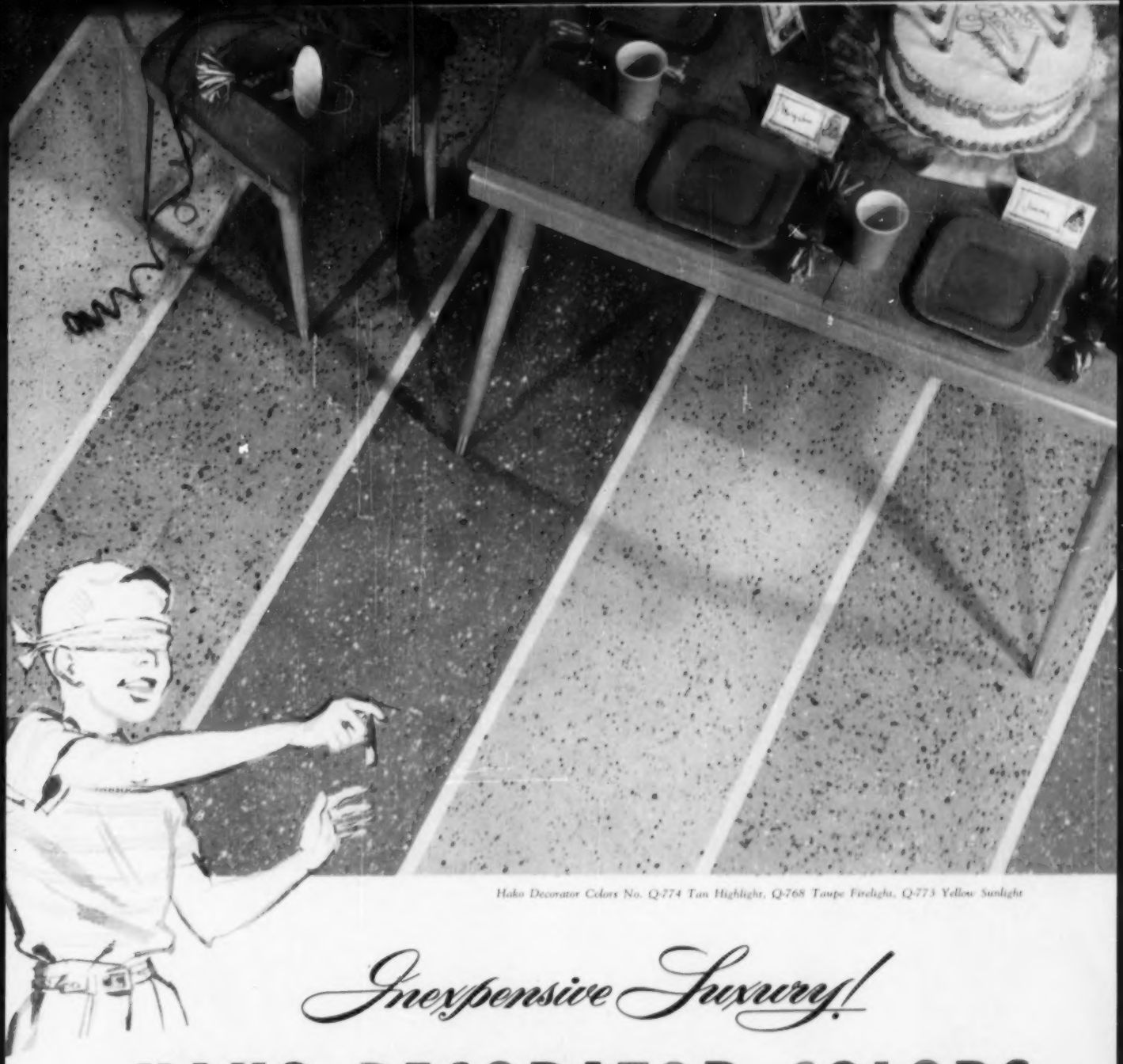

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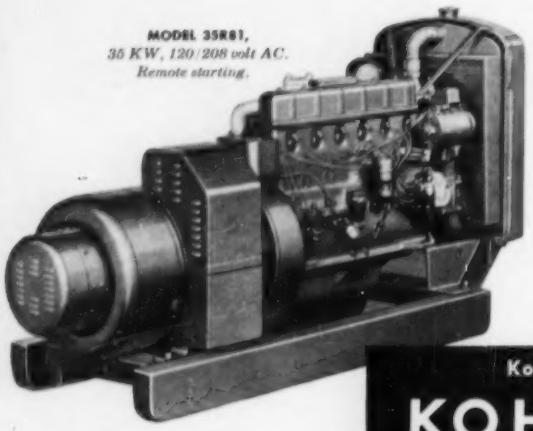

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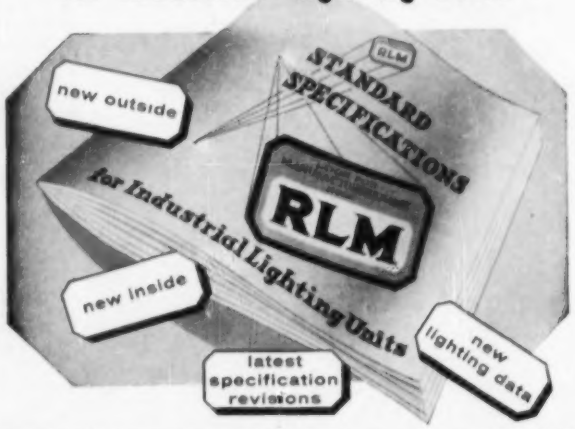


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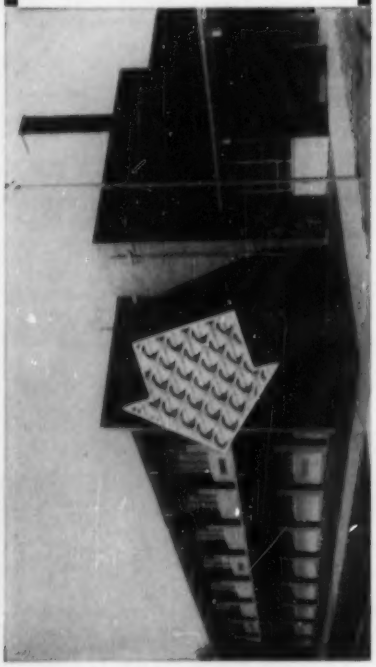

# THE RECORD REPORTS

## A WASHINGTON REPORT

*(Continued from page 32)*

1. Supporting elements integral with panel construction.

2. Supporting elements as a sub-frame erected independent of the panel construction.

Assembling methods were regarded as basic with two proposed:

1. Assembly as parts or panels.

2. Assembly as units.

Thus, a combination of these systems of identification could result in clear definition of any curtain wall type. For example, design 4, support 2, and assembly 2 would describe a curtain wall with emphasized spandrel elements supported on an independent sub-frame and assembled as units for erection.

With architects needing a workable system for description, it was proposed that further study be given to overall nomenclature for the metal curtain wall.

The subcommittee also reported that joint types could be classified as (1) integral, in which the panel edges form the complete joint, and (2) accessory, in which extra pieces are required to complete the joint.

### *Weather Not Forgotten*

The "weatherproofness" workshop said it would classify joint seals as rigid or non-rigid. The former would be bonded joints, either metallic or non-metallic, and the non-rigid type would include mastic fillers, gaskets, cover tapes, and metallic strips.

This roundtable had its own recommendations for the Institute, urging that it:

1. Correlate and collect existing information and data governing the relationship of wind velocities and resulting pressures and water column effects to be considered in curtain wall design.

2. Establish a committee to determine the necessary performance requirements of joint sealing materials.

3. Coordinate the work of groups preparing for publication impartial comparative data on the characteristics of all the various types of joint sealing materials.

4. Publish data as to standard accepted practice in respect to allowable dimensional tolerances in building frames and make recommendations as to how these tolerance limits can be more strictly observed.

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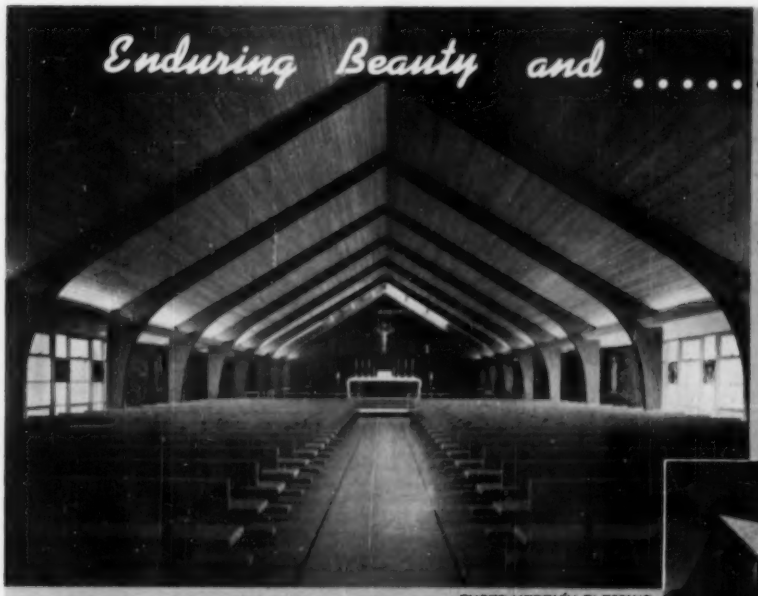

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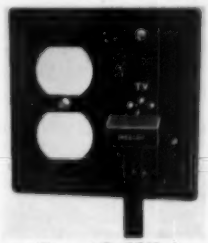

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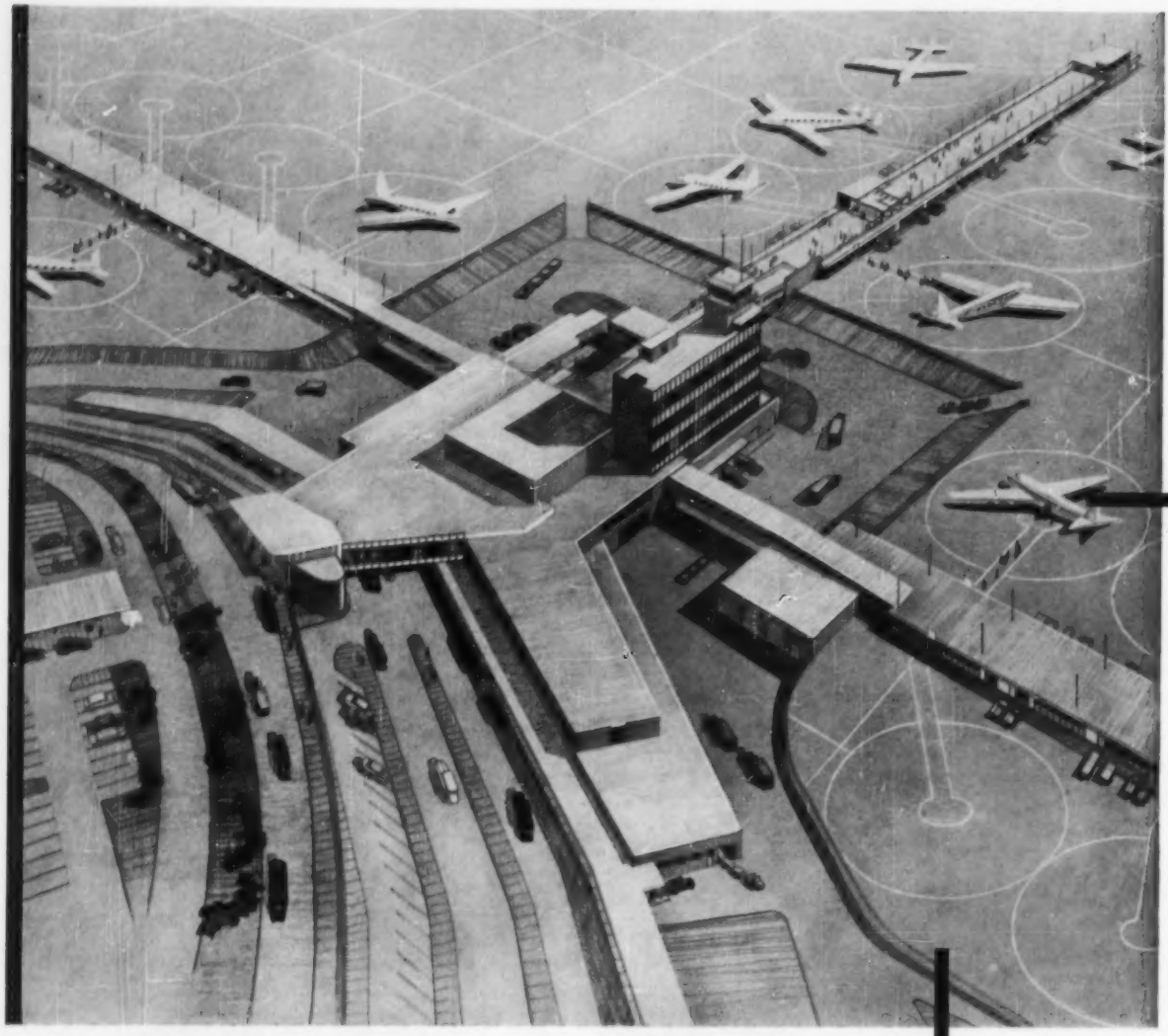

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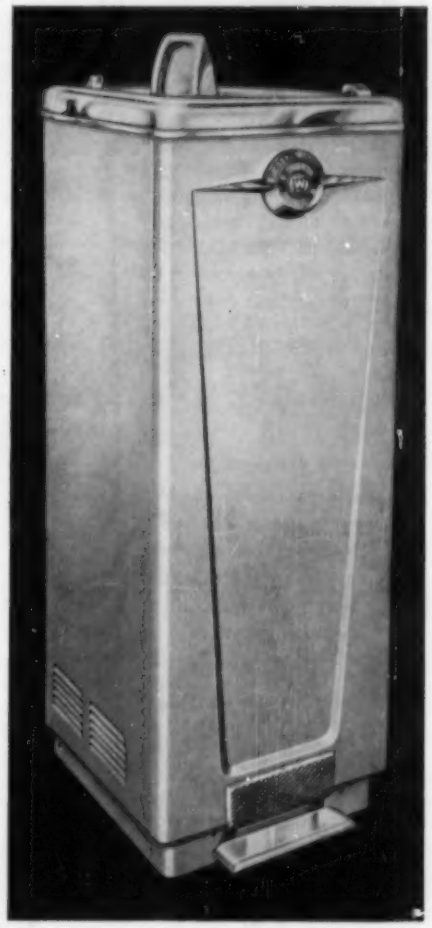

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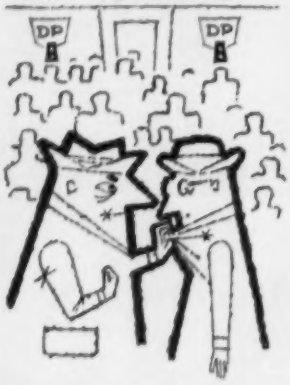


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## THE RECORD REPORTS

## REVIEWING THE RECORD

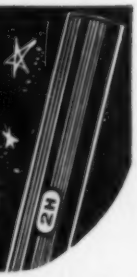
**Footnotes to architectural history from the ARCHITECTURAL RECORD of 1906:**

**Professional progress** was noted by one writer in the November issue. "It was not so long ago," he observed, "that the number of architects who had received a thorough technical training and who practiced in the small cities, particularly of the Middle West, could be counted on the fingers of one hand. . . . During the last ten years, however, and particularly during the second half of that period, this state of things has been gradually changing. The number of thoroughly trained architects has been largely increased in that time by many graduates from the Beaux Arts, from the best American schools, and from the offices of the leading architects in New York and elsewhere. These younger men have in many instances begun to practice in the cities of from 100,000 to 500,000 inhabitants, and they have succeeded in exerting a considerable influence upon the architecture of such cities."

*(Continued on page 318)*

*At the Milan International Exhibition, held to celebrate the opening of the Simplon Tunnel, the most outstanding building, according to the* RECORD'S *article by Robert C. Carden, was the Machinery Hall above. Below: the "huge building devoted to every sort of auto-car"*

**COLORED DEGREE MARKING**

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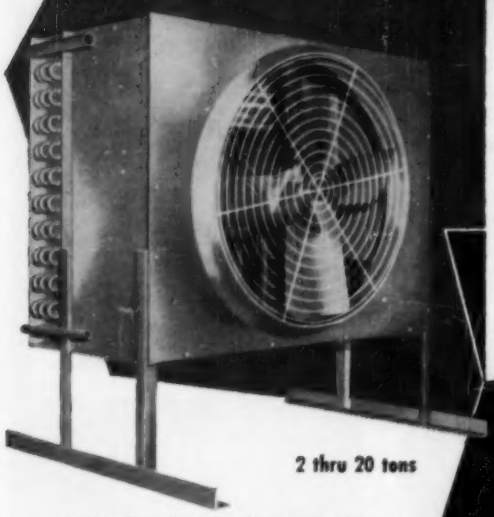

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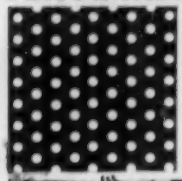

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## THE RECORD REPORTS

## REVIEWING THE RECORD

*(Continued from page 316)*

The same writer, encouraged though he was about the improvement of architectural design, felt compelled, by who knows what excesses on the part of the profession, to caution architects on their economic responsibilities. "The ability to spend a client's money economically," he wrote, "is part of an architect's duties which some admirable designers have been prone to overlook, and an architect who really wants to do excellent work cannot do either himself or his profession a greater service than that of getting five dollars' worth for every five dollars of other people's money which he must needs spend."

*Not the Coliseum, nor even Rome, but "The Panorama" in Golden Gate Park as the earthquake left it*

**The 'quake:** reports of the disastrous April earthquake and fire continued to come in from San Francisco. December's issue narrated the efforts of one Mr. Jenks to save his house. "All that part of the city in which Russian Hill is situated was burned to the ground, but the houses on Russian Hill itself escaped, partly because of the amount of vacant property in the immediate neighborhood, and partly because the houses were well protected by the good sense of their owners and the exertions of their friends. Thus the preservation of Mr. Jenks' house was largely due to the precautions which the owner himself took when the earthquake occurred. Mr. Jenks realized that before long the water supply would probably be interrupted, and that a conflagration would follow. So he filled every receptacle he had in the house with water, and when the fire arrived he and his Chinese cook mounted the roof and thoroughly soaked the split redwood shingles of which it was made. He was finally driven away by soldiers, as were the defenders of the other houses in the neighborhood; but in the meantime their work was accomplished."

*(Continued on page 324)*


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# THE RECORD REPORTS
## REVIEWING THE RECORD

*(Continued from page 318)*

**Sculpture in parks:** an anonymous writer in the December Notes and Comments column happily observed an "increasing distrust of sculpture as an appropriate park ornament," but warily watched a "tendency to make cemeteries of parks by putting memorials in them." As an illustration of what he considered a discreet memorial, he cited a granite bench then being erected in a Wilmington park: "It is strange that benches are not a more frequent form of memorial — if there must be memorials in parks. Except in the more pretentious guise of an exedra, one seldom finds the bench, and yet in what other shape does a memorial so invite to meditation?"

**Synagogues** were the subject of a review in December by Abram S. Isaacs, who covered the history of synagogue design from the ancient Kafr-Birim synagogue in Galilee (above) and the new synagogue in what was then Warsaw, Russia (below). For the interiors of synagogues, Mr. Isaacs recommended that the decorations be rich and sumptuous and "treasured from generation to generation until they acquire a venerable age, to become a powerful object lesson to the young, and to the old worshipper matters for pious contemplation."

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Childs & Smith, Chicago

***General Contractor:***
George A. Fuller Company, New York

***Erector of Windows and Mullions:***
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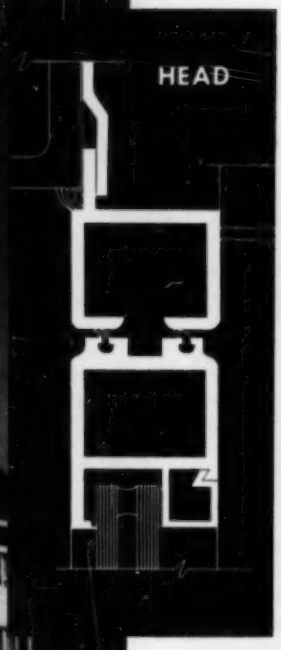


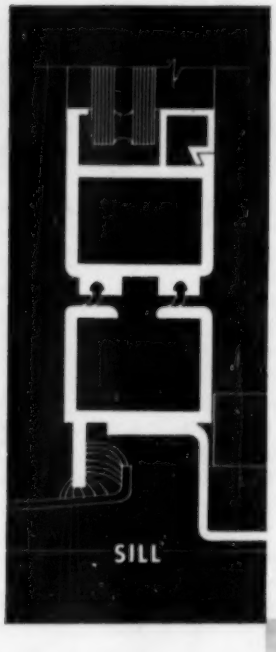


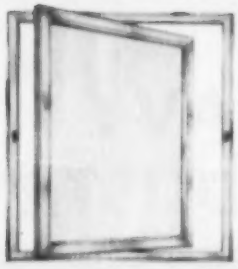

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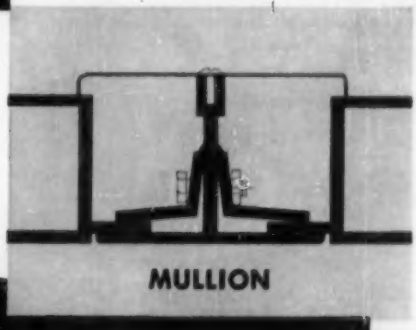


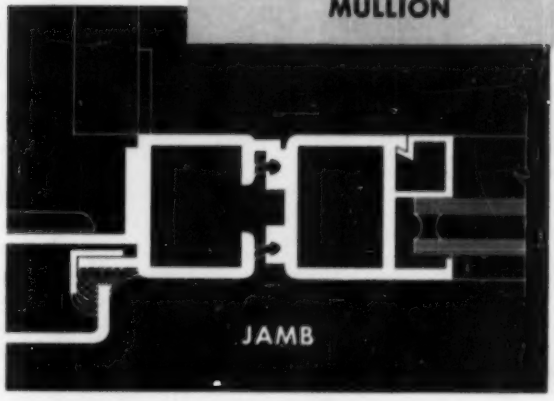


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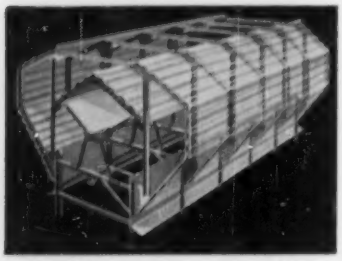

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## REQUIRED READING

*(Continued from page 62)*

### KITCHENS FAMILY STYLE

*How to Choose, Plan, Equip and Decorate Kitchens.* By Virginia Hart Wheeler. Abelard-Schuman, N. Y. 1956. 232 pp. Illus. $5.95

"*Women in their own kitchens work in their own sweet way, at their own pace, and with habit patterns that fit their preferences, physical differences, and family needs.*" From this major premise Virginia Hart Wheeler has developed a quite informative and particularly perceptive treatise on modern kitchen design à la modern women.

The author, trained as a domestic architect, has been planning kitchens since Depression days when architectural practice had holes in its shoes. In *How to Choose, Plan, Equip and Decorate Kitchens*, Miss Wheeler has assumed a double obligation: to explain to women the how, why, and wherefore of modern kitchen design; and to lend a bit of feminine insight to those architects who would like to know what modern women want and expect in a kitchen. Thus, Miss Wheeler writes both to the designer and the client. Some passages, directed toward the housewife who is faced with a choice in the design of her kitchen, seem a little heavy on womanly chatter for an architect to swallow. Even so, Miss Wheeler's literary style is informally crisp and colorful, and is almost void of floral decor.

The opening chapter, "A Quick Look at the Past," traces the evolution of kitchen design from the drab culinary discomforts of the early twenties through the frigidly efficient "laboratory kitchen" era to the equally efficient but warm and spacious designs that predominate today's kitchens.

Miss Wheeler's contention that economic trends caused the revolution in family living patterns that caused the evolution in kitchen design is no news, but her definitive treatment of America's present living patterns is excellent information which shows feminine insight toward feminine tastes and reactions.

Included in the chapter on living patterns is a selection of nine kitchen designs which supposedly provide for the nine most common family patterns. The nine designs are meant to exemplify patterns, not to instigate clichés.

For the most part this book is informative and interesting from the point of view of both the designer and the client. —D. T.


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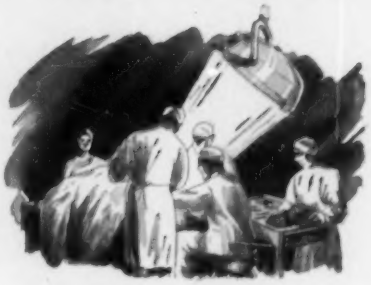

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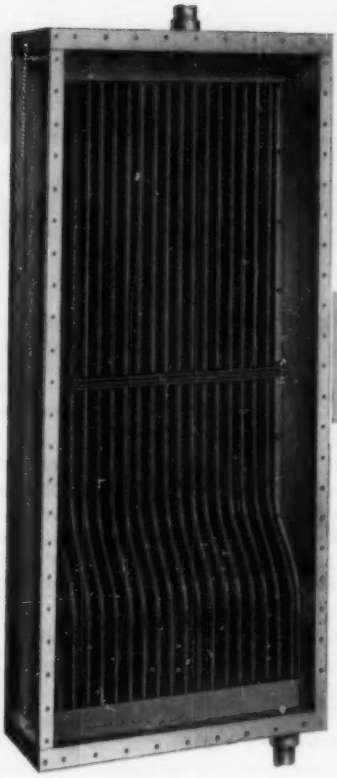

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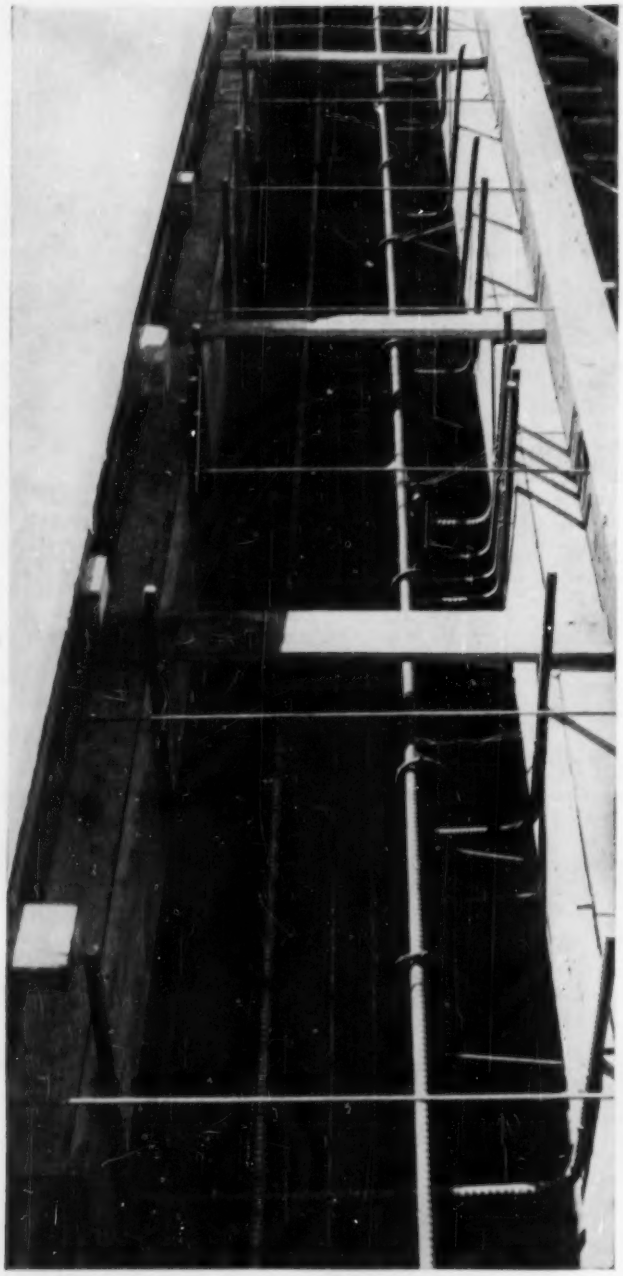

Nurses' Home, St. Anthony's Hospital, Oklahoma City, Oklahoma
C. L. Monnot, Architect, Harmon Construction Co., General Contractor

# TRUSCON saves $17,000 in

St. Anthony's Hospital School of Nursing was designed as a monolithic concrete frame structure, four stories high. Prestressed beams, using Truscon Stressteel Tensioning Bars, span 52 feet over the auditorium and carry third-floor pickup columns which support fourth floor and roof.

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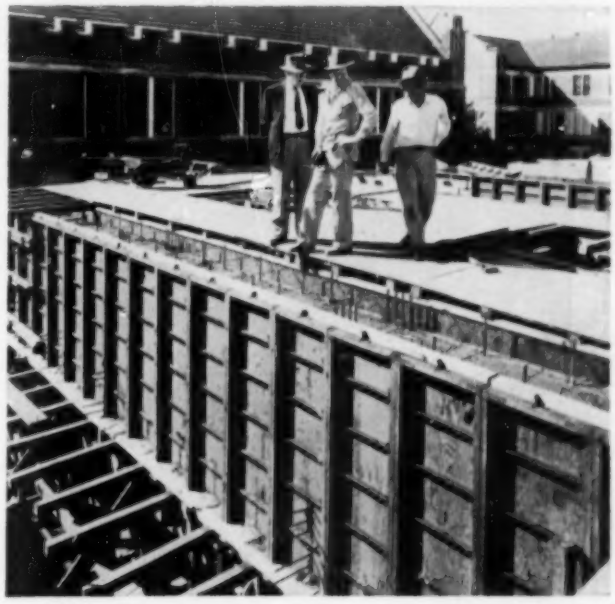

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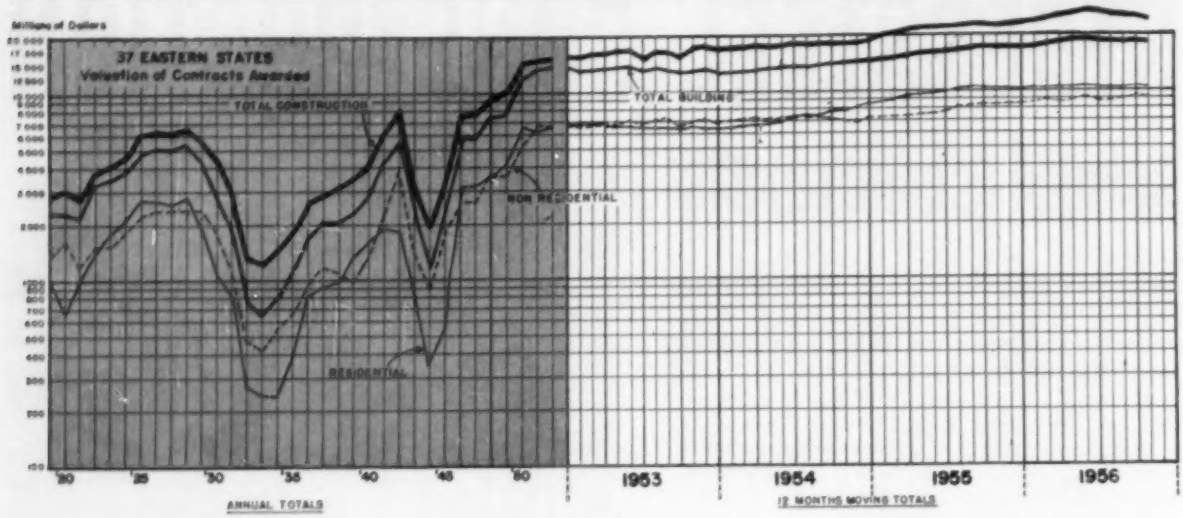



*Charts by Dodge Statistical Research Service*

## OCTOBER OFF, BUT 10 MONTHS SET A RECORD

Contract totals for October dropped eight per cent below those of October 1955, according to figures released by F. W. Dodge Corporation. At a total of $1,706,406,000 awards were down in all the major building categories listed by Dodge: nonresidential contracts were down two per cent from last October at $675,414,000; residential contracts were down 16 per cent at $656,464,000; and heavy engineering contracts down three per cent at $374,528,000. Despite the decrease which started in June and has continued every month since except August, the cumulative award totals for the first ten months of 1956 nevertheless established a new record for the period — the total of $21,147,472,000 is six per cent higher than the total for the same period in 1955. Categorically, the ten-months totals show nonresidential awards at $7,653,074,000 up eight per cent from 1955, residential at $8,751,101,000 up less than one per cent, and heavy engineering awards at $4,743,287,000 up 14 per cent over last year.

Source: F. W. Dodge Corporation

**RELIGIOUS BUILDINGS ***

Contracts Awarded—37 Eastern States

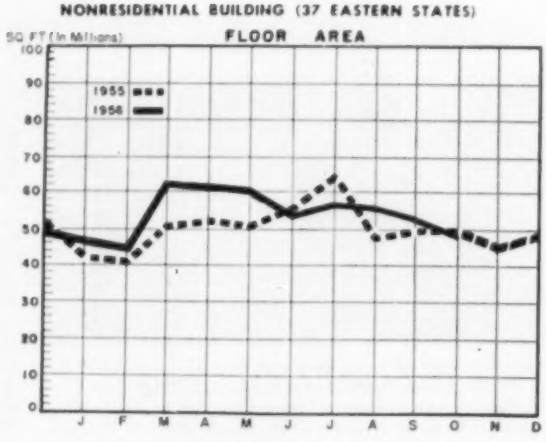
**Number of Projects**

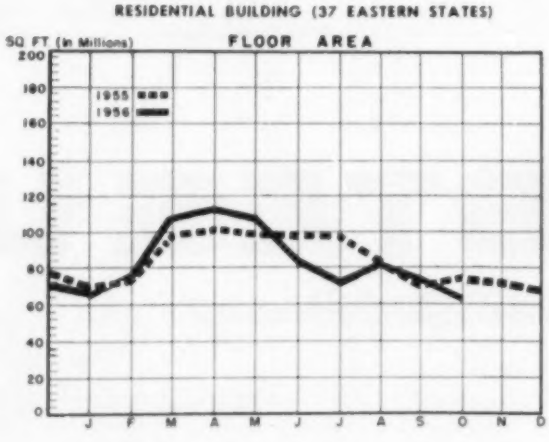
| Year | Annual Totals | Monthly Average | Year | Annual Totals | Monthly Average |
|---|---|---|---|---|---|
| 1929 | 2277 | 190 | 1950 | 4330 | 361 |
| 1935 | 1521 | 127 | 1951 | 4061 | 338 |
| 1941 | 2617 | 218 | 1952 | 3984 | 332 |
| 1944 | 965 | 80 | 1953 | 4693 | 391 |
| 1946 | 1738 | 145 | 1954 | 5652 | 471 |
| 1949 | 3958 | 330 | 1955 | 5647 | 471 |

**Monthly Totals**

| | 1955 | | | 1956 | | |
|---|---|---|---|---|---|---|
| Jan. | 306 | July | 619 | Jan. | 283 | July | 620 |
| Feb. | 359 | Aug. | 519 | Feb. | 326 | Aug. | 615 |
| Mar. | 485 | Sept. | 504 | Mar. | 469 | Sept. | 564 |
| Apr. | 547 | Oct. | 489 | Apr. | 531 | Oct. | 542 |
| May | 513 | Nov. | 406 | May | 649 | | |
| June | 565 | Dec. | 335 | June | 570 | | |
| | | | | 10 mos. total— | | | 5169 |

* Religious buildings are the subject of Building Types Study No. 241, pages 123–154



# NATIONAL SEAMLESS PIPE

## used for heating and air conditioning system of new Texas National Bank Building

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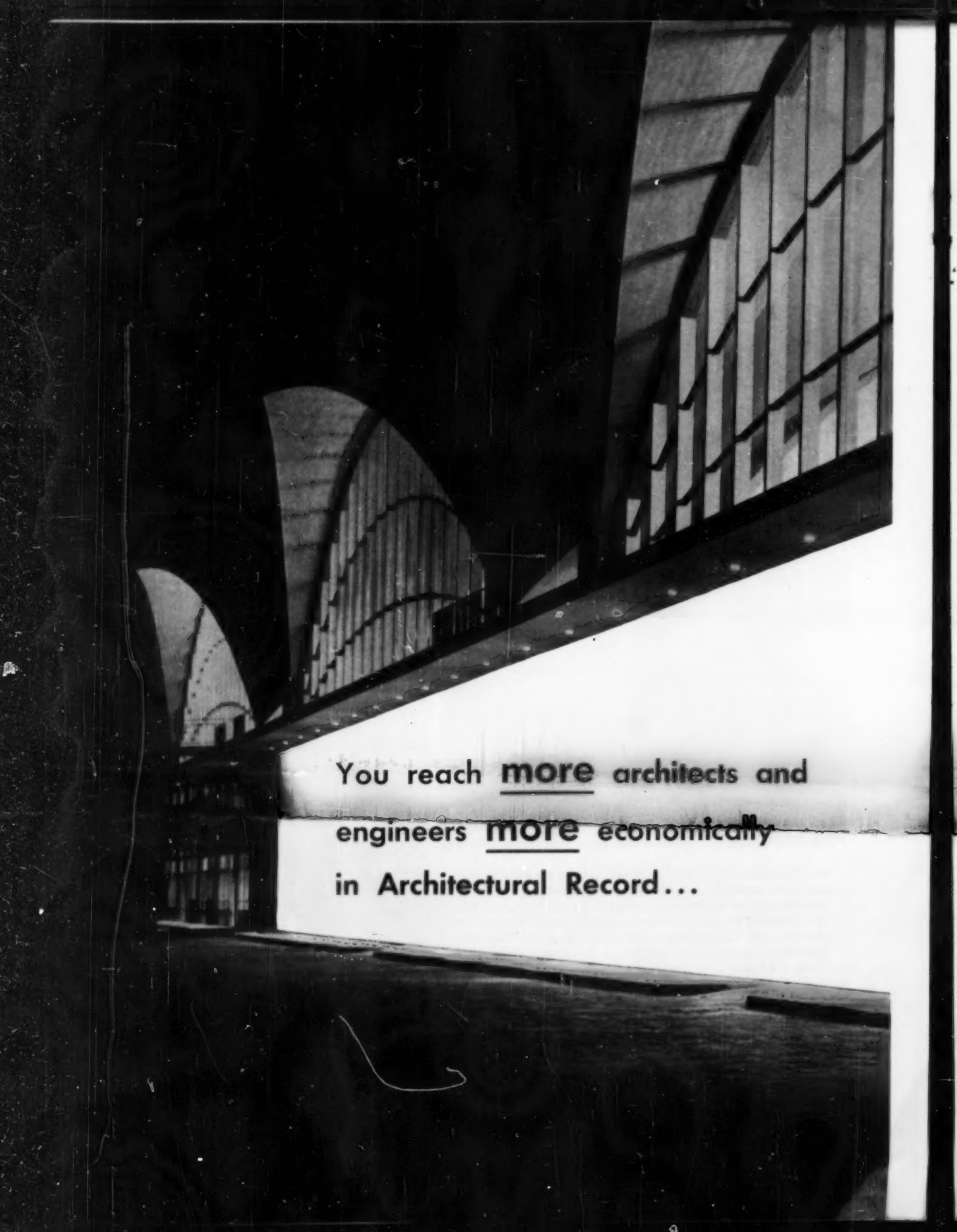

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**Catalogs of the firms listed below are available in the 1956 Sweet's Catalog Files as follows: (A) Architectural File (green), (IC) Industrial Construction File (blue), (LC) Light Construction File (yellow)**


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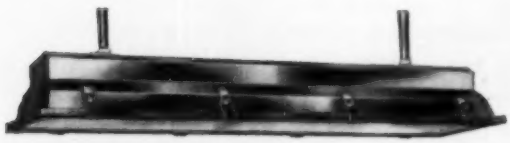

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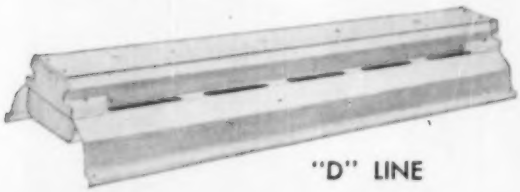

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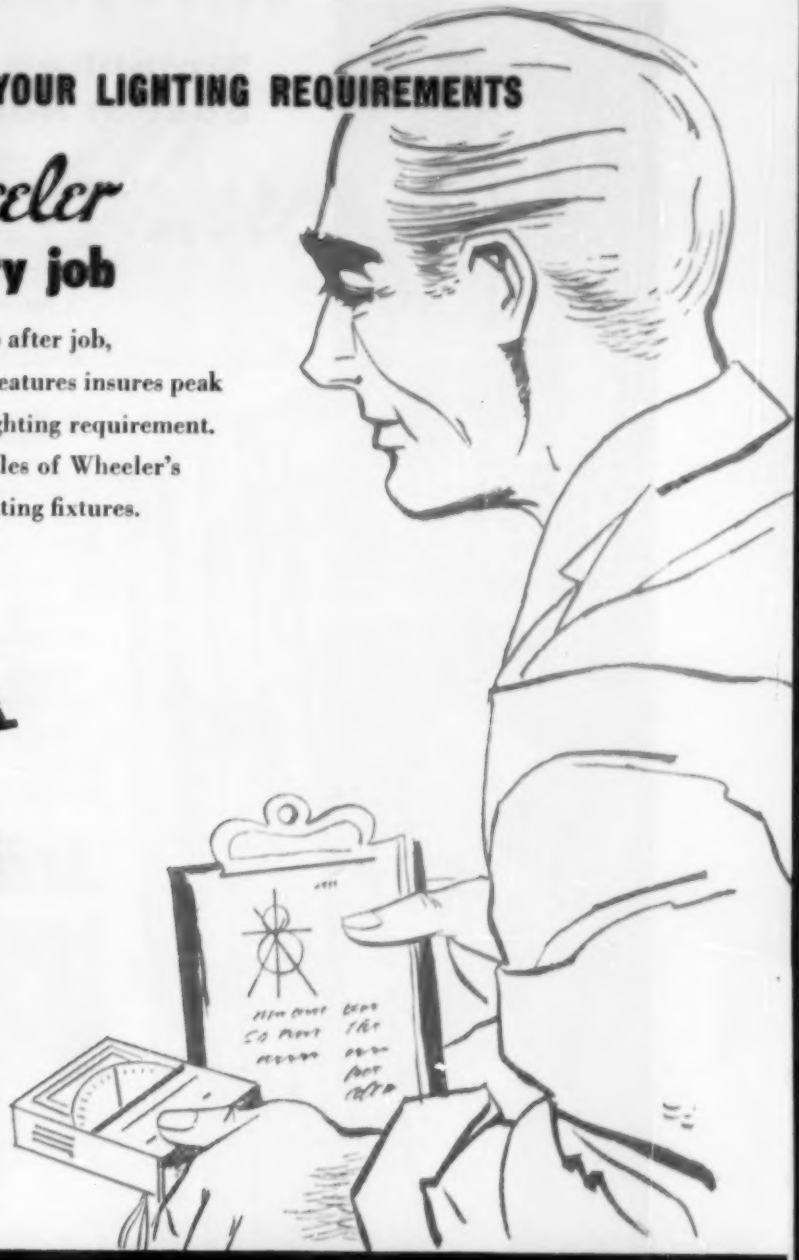

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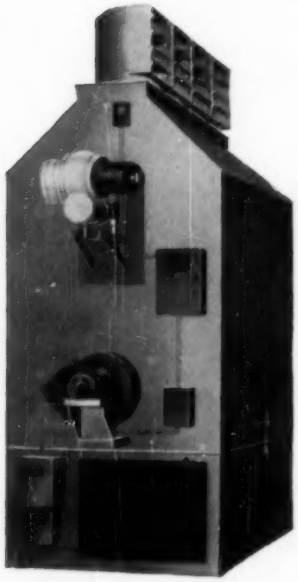

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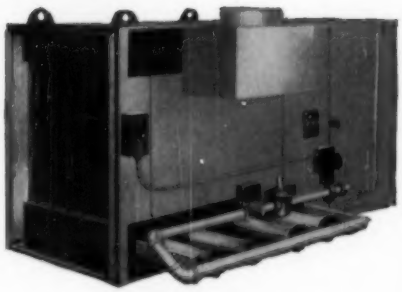

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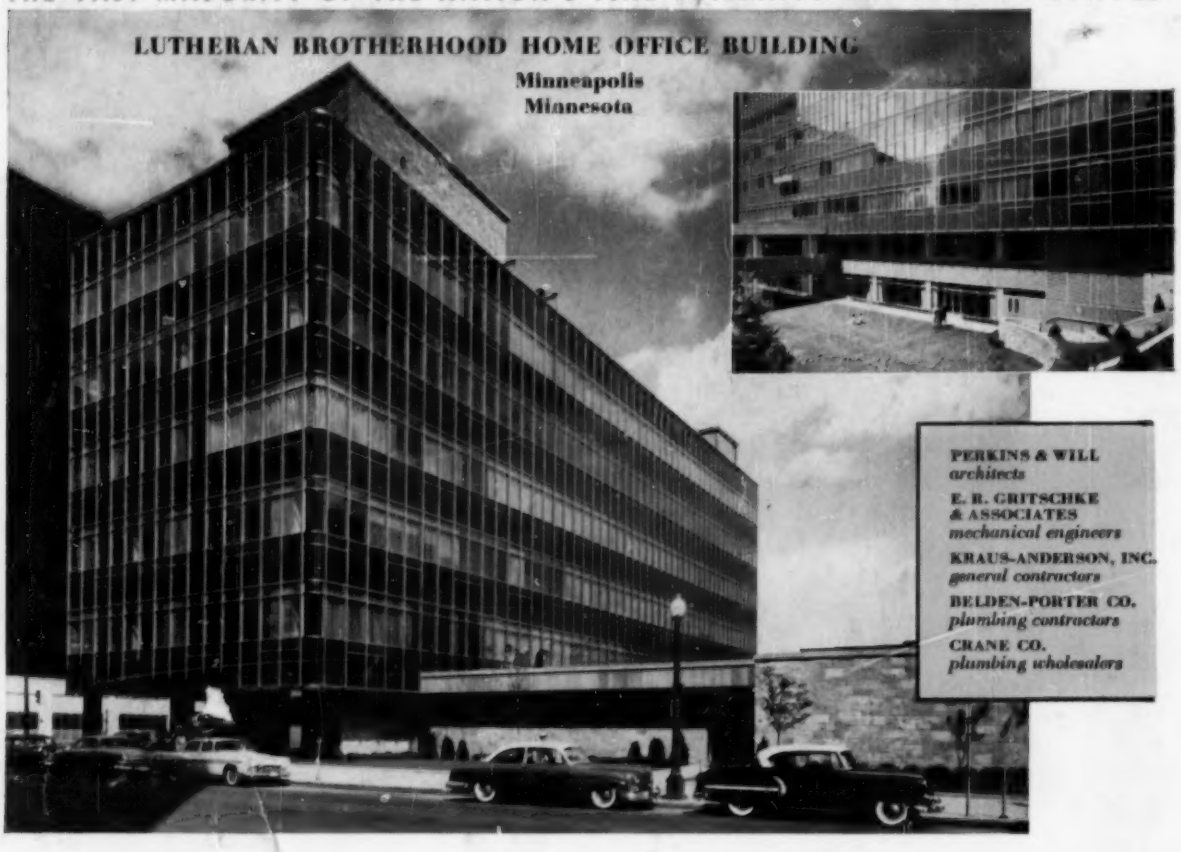


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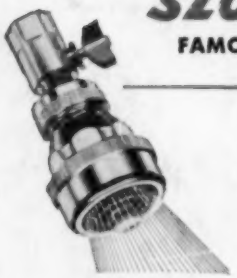
• New beauty of form, color and symbolism has been implanted in the heart of Minneapolis by the Lutheran Brotherhood, a fraternal life insurance and benevolent organization. The five upper stories of this new headquarters building are enclosed in a colorful curtain wall, cantilevered 5 ft beyond the reinforced concrete structural columns to form outside corridors which also serve as sunshades. The curtain wall is formed of horizontal blue-green enameled steel bands alternating with continuous window bands, double glazed with tinted glass. Both bands are set into shimmering stainless steel frames. Intersecting vertical frame members form symbolic crosses on the facade. The entire building is air conditioned, with a conduit system around the perimeter and a conventional system in the interior. The site provided a below-street-level floor bordered by a landscaped garden, screened from street traffic. On this floor, facing the garden, are a spacious lounge, dining room and auditorium. In this new building, as in thousands of others which have won wide acclaim, SLOAN *Flush* VALVES are installed throughout.



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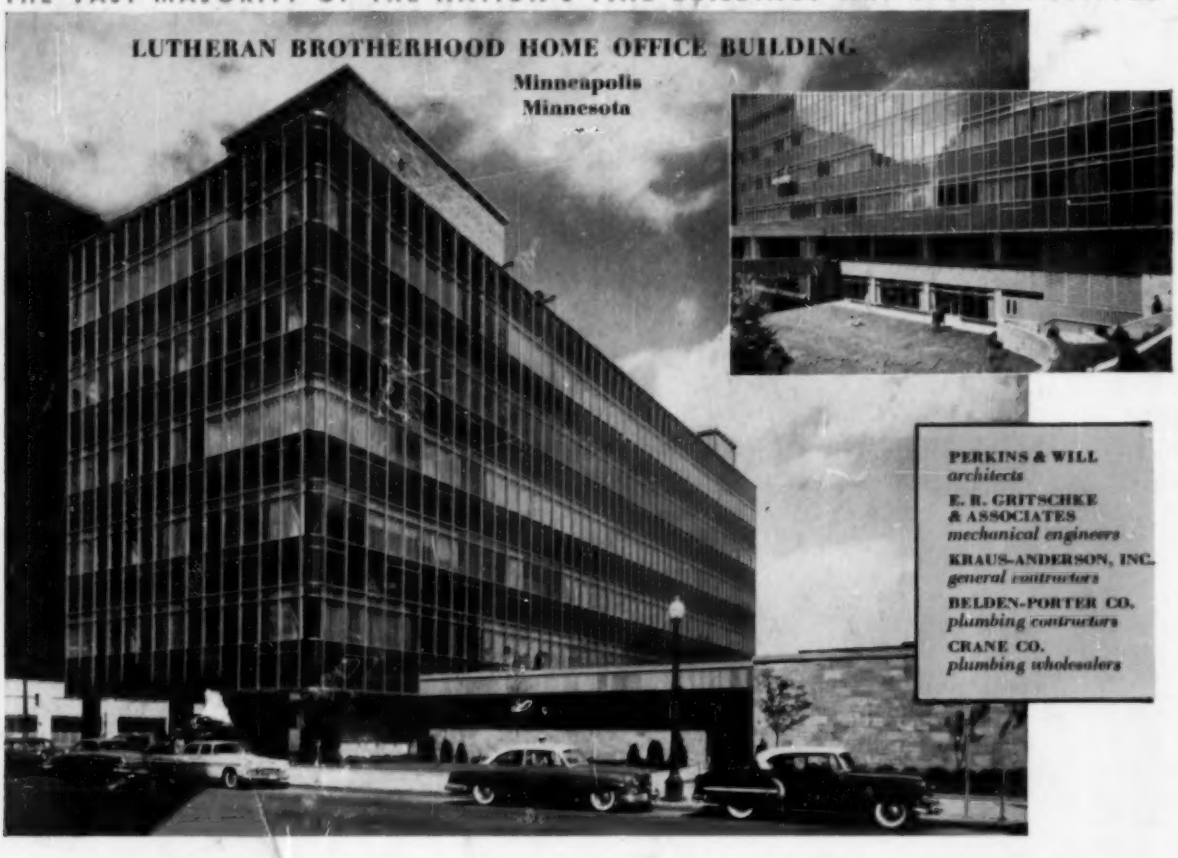


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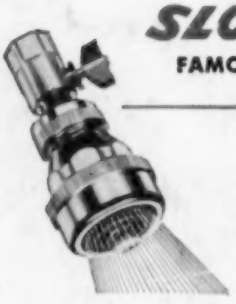

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